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Production Costs and Yields of California Field Crops and Vegetables by Area, Average 1961-65 and Projected 1980

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and
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PRODUCTION COSTS AND YIELDS OF CALIFORNIA FIELD CROPS AND VEGETABLES BY AREA, AVERAGE 1961-65 AND PROJECTED 1980

by

C. Richard Shumway

and

Harold M. Stults

California Agricultural Experiment Station
Giannini Foundation of Agricultural Economics
in cooperation with
Farm Production Economics Division and
Natural Resource Economics Division
Economic Research Service
U.S. Department of Agriculture

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PREFACE

This report is a revised and extended explanation of basic production relationships estimated as a part of Richard Shumway's Ph.D. thesis. Although no analysis is presented in this report, important data on yields and production costs are brought together and summarized for 15 major field crops and vegetables. These data are compiled according to a consistent set of assumptions for each of 95 agricultural production areas of California. The bases for our estimates include published data, trends, and the judgment of county and state specialists. The method of estimation has made it possible to reasonably predict costs and yields in some areas having no history of production as well as in areas where the specified crop is currently produced.

In the thesis, these estimates provide the production parameters for the location analyses used to project 1980 cropping patterns. The results of the analytical models are presented in a forthcoming manuscript. The information presented in this publication was developed primarily for use in the linear programming location models. However, much of it should be of interest to others, both researchers and decision makers, concerned about current or future cropping patterns, resource use, agricultural adjustments, and regional or community development. While an analytical system is necessary to indicate areas having a comparative advantage in the production of a given crop, absolute advantage can be determined by comparing these costs and yields.

We are indebted to many individuals without whose generous cooperation neither this report nor the more analytical studies would have been possible. Farm advisors in virtually every county responded graciously to a questionnaire concerning yields in their county by production area. Commodity, soil, and climate specialists on both the Experiment Station and Extension staffs at the University of California spent many hours assisting in the delineation of production areas and/or rendering their best judgments of current costs and yields for areas where published data were not adequate. Many also offered their opinions about developments which will affect future yields. These experts included: Robert S. Ayers, Eugene L. Begg, Lester J. Berry, Lawrence J. Booher, Glen N. Davis, Dewayne E. Gilbert, Jack Hanna, F. Jack Hills, Marvin Hoover, Gordon Huntington, Karl Ingebretson, Robert F. Kasmire, Paul F. Knowles, Robert S. Loomis, George A Marlowe, Jr., Duane S.

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Others who contributed greatly in this respect included: John C. Lingle of Shell Chemical Company and Louis R. Mitchell and Helen Peters of the California Department of Water Resources.

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PRODUCTION COSTS AND YIELDS OF CALIFORNIA FIELD CROPS AND VEGETABLES BY AREA, AVERAGE 1961-65 AND PROJECTED 1980

by

C. Richard Shumway* and Harold M. Stults**

INTRODUCTION

Agriculture in California is characterized by wide differences in costs and yields per unit of land. These cost and yield differences are largely due to the inherent diversity of the natural resource complex, which strongly affects cropping patterns, farming systems, and farm profits. Any study concerned with production patterns, regional resource use, or agricultural adjustments in this State ought to consider the comparative advantage of alternative cropping activities. Sound and consistent information concerning cost and yield differentials is essential for this purpose.

Objectives

The objectives of this report are to: (1) define agricultural areas of the State with approximately the same productive relationships because of similarities in the natural resource endowment, (2) estimate typical yields and nonland production costs of major field crops and vegetables in these areas during the period 1961-65, and (3) project the extent to which these estimates might change by 1980.

The estimates are not limited to areas having a history of production of a specific crop. However, only typical (or average) costs and yields are estimated for any area. No attention is focused on variance over space within a defined area (because of differences in management, farm size, etc.) nor on variance over time between areas (relative riskiness).

Plan of Presentation

Considerable data are summarized in this report using tables and figures. Therefore, for the sake of reading continuity, the text is presented first, and all tabular and diagramatic material follow. The text unfolds in the following sequence: production areas are defined first, crop activities for which cost and yield per acre are estimated are specified next, current and future yields are discussed in the third section, procedures for estimating current and future nonland production costs are explained in the fourth, and the peculiarities of the barley-grain sorghum double crop activity are elucidated in the last.

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HOMOGENEOUS PRODUCTION AREAS[1]

The goal in defining homogeneous production areas is to group farms which have similar yields and production costs. The productive capacity of all farms within a production area will be represented by a single cost and yield estimate for a crop activity. Hence, it is essential to reduce as much as practicable the variance of the individual farm estimates through appropriate delineation of production areas.

Estimates of average county yield are published for most important crops in California. Cost estimates similarly are often identified as typical for a county. Although published data are compiled for many crops on a county basis, using county boundaries to identify production areas does not adequately meet our specified criterion. A typical county in California is an extremely complex production area. Most counties are made up of valleys and mountains, shallow soils and very deep soils, areas with surplus supplies of water and others with little water. Reliance on county boundaries results in the delineation of production areas which are so heterogeneous that one may be but slightly less justified in considering the entire State to be one production area.

Although the ease of referring to familiar geographic units is reduced by ignoring county boundaries, it is expected that considerably more satisfactory production areas can be obtained by following natural resource groupings. Soil, climate, and water are the key natural resources affecting production. These are also the factors of production which are least susceptible to change. Soil productivity and microclimate can be modified somewhat by production practices; water can be transported long distances with expensive water projects; but the productive potential of these resources is much less flexible over time and space than that of variables such as labor, capital, or managerial ability. Therefore, the requirements for defining a homogeneous production area in this report are similarity of soil, climate, and water. Because of differences in other variables, the actual variance of costs and yields among farms within these production areas is still significant. However, it should be much lower than the variance among farms within most counties.

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[1] For a more complete discussion of the delineation of homogeneous production areas, see Shumway's thesis [28].

Soil Categories

Thirteen soil categories are defined: eleven because of significantly different productive capacity of the soil, and two primarily because of very dissimilar water conditions. The soil groups are mainly delineated from the Storie soil classification [30]. Soil Conservation Service general soil reports [34], detailed soil surveys [2, 19, 39], reconnaisance soil surveys [20], and the judgment of State and county specialists also contribute to the delineation of specific soil categories and areas.

In the maps (Figures 2 to 9), the soil groups are identified by the first digit of the numeric code: 0 - alluvium, 1 - basin, and 2 - terrace. The first two digits combined identify the individual soil category. Soils 01 - 03 are recent alluvial fan and flood plain soils of medium texture: soil 01 occurs generally in medium to high rainfall zones, soil 02 in moderately low rainfall zones, and soil 03 in low rainfall zones; soil 05 is wind-modified, sandy soil; soil 11 consists of the organic soils; 12 is salt-free basin clay soil; 13 is clay soil with moderate to strong salt concentrations; 14 is basin rim soil reclaimed of salts; 15 is unreclaimed basin rim soil; 21 is terrace loam soil with medial profile development; 22 is terrace clay soil; 23 is claypan soil; and 24 is soil underlaid with hardpan.

Plantclimate Zones

Climate, encompassing such variables as the amount and distribution of rainfall, light, temperature, humidity, and air movement, is the dominant limitation over crop adaptability. Temperature exerts a greater influence over plant growth than rainfall in the principal farming areas of California. Irrigation supplements natural rainfall in the more important agricultural areas.

Although temperature is the key variable delineating plantclimate zones, other components of climate are indirectly accounted for because of their correlation with temperature. Such relationships are elucidated by Kimball and Brooks in their preliminary publication of 16 plantclimate zones in California [21, pp. 9-10]. A revision of the plantclimate map, dividing the State into 19 zones for the benefit of the home gardener, has been published by Sunset [1, pp. 17-27].

In consultation with Dewayne Gilbert, University of California Extension Bioclimatologist, the above delineations were modified and 19 agricultural plantclimate zones were identified and grouped into nine regions for this study. The regions are depicted in Figure 1. The third digit of the numeric code in Figures 2 to 9 identifies the region, and the third and fourth digits together specify the climate zone. There are two climate zones delineated in the North Coast (Region 1), four[2/] in the Central Coast (Region 2), four in the South Coast (Region 3), two in the Sacramento Valley (Region 4), one in the San Joaquin Delta (Region 5), three in the San Joaquin Valley (Region 6), two in the Desert (Region 7), one in the intermediate elevation region (Region 8), and one in the high mountain region (Region 9).

Delineation of Homogeneous Production Areas

An overlay of the climate zones with the soil categories results in 115 homogeneous production areas (HPAs) being delineated. In 20 of these, the acreage available for agriculture is expected to be insignificant by 1980. This is due both to the delineation of some very small HPAs and to extensive urban expansion anticipated in several areas. Per acre cost and yield are estimated in the following sections for the remaining 95 HPAs.

CROP ACTIVITIES

Twenty-four crop activities involving the production of 15 major field crops and vegetables are defined in this report:

Vegetables

Asparagus
Broccoli (single crop)
Broccoli & fall or spring lettuce (double crop)
Lettuce, fall or spring (single crop)

[2/] Climate 24 in the Central Coast is the same as climate 51 in the San Joaquin Delta.

Lettuce, fall & spring (double crop)
Lettuce, fall or spring & summer (double crop)
Lettuce, summer (single crop)
Lettuce, winter (double crop)
Cantaloupes, spring & fall
Cantaloupes, summer
Potatoes
Tomatoes, for processing

Field Crops

Corn
Barley (fallow)
Barley (nonirrigated)
Barley (irrigated, single crop)
Barley & grain sorghum (irrigated, double crop)
Grain sorghum (single crop)
Alfalfa hay
Dry beans
Rice
Safflower
Sugar beets
Cotton

YIELDS

Estimation of Typical 1961-65 Yields

Three independent sets of yield estimates were developed for each HPA. One set of yields was obtained from a questionnaire sent to each county director of the California Agricultural Extension Service. The best estimate of their staff of typical recent yields on harvested acreage by HPA was requested. All but one county responded to the questionnaire.

A second set of yields was obtained from conferences held with University of California commodity specialists.[3/] The commodity specialists were asked to estimate typical yields of their respective crops for all soils in one climate and for one soil in all climates. Since the characteristics of a given soil do not vary markedly by climate zone, and climatic qualities do not vary greatly by soil group, relative yield between two soils in one climate should be the same as between the same soils in any other climate. Therefore, the specialists' estimates were expanded to provide yield estimates in all HPAs not directly estimated by them.

The third set of typical yield estimates was developed by asking a University soil specialist to estimate yields for all crops on each soil in

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[3/] The specialists involved are identified in the Preface.

one climate and a climate specialist to estimate yields on one soil in each climate. These estimates were expanded in the same way as the estimates of the commodity specialists.

The yield estimates from the county extension service were normalized to center on average county yield, and all three sets were normalized to the 1961-65 State average[4/] [4, 5]. The simple average of these three sets of normalized yields provide the 1961-65 estimates by HPA in Table 10.[5/]

The yields, as summarized in Tables 10 to 14, are estimated for only one type of production in a given HPA for any specified crop, except for barley. A nonirrigated barley yield and an irrigated barley yield are estimated for those HPAs in which both types of production are possible. But the magnitude of crop yield estimates are not differentiated by season or single versus double crop culture. In those HPAs where a crop of nonirrigated barley must be preceded by a fallow year, the yield coefficients in Tables 10 to 14 are one-half the yield estimated for the crop year. For the double crop activities involving lettuce, the yields of both harvested crops in the year are included. For a discussion of the special case of barley-grain sorghum double crop production, refer to the final section of the text.

[4/] Exceptions include the following:

(a) Cotton yields are based on solid plant production only and are normalized to a value 9.1 percent lower than State average gross yield. Gross weight includes bags and ties which average 22 pounds per 500-pound bale.

(b) Safflower yields are estimated for an irrigated culture. They are normalized to a value 10 percent higher than State average because of the sizable proportion of acreage historically not irrigated.

(c) Potato yields are for USDA No. 1 quality only. They are normalized to a value 25 percent lower than State average of all potatoes.

[5/] In general, if a double crop activity is specified for the production of a commodity in an HPA, a single crop activity is not also specified there. However, in a cost minimizing linear programming model using these data, it was observed that total cost could be reduced if a single crop activity were added for summer lettuce in the Central Coast and for irrigated barley in the Central Valley. Rather than expanding these crop activities to all HPAs in those regions, the most efficient areas for such activities were determined by inspection. Hence, a summer lettuce single crop activity is identified for only a limited portion of the HPAs in the Central Coast, and an irrigated barley activity for only part of the HPAs in the Central Valley.

Yield Projections

Average yield per acre of all major crops in California has risen rapidly in the last several decades as a result of technological advances. Given the current emphasis on research and adoption of new ideas, this upward surge in yields is expected to continue. The question is, how much? Two point estimates for the 1980 yield of each crop were obtained by statistical estimation of time trends using a linear equation

(1) $$Y = a_1 + b_1 T,$$

and logarithmic equation

(2) $$\log Y = a_2 + b_2 \log T,$$

where T is year ($T_{1945} = 1$) and Y is average California per acre yield. They were estimated from annual California yield data for the years 1945-66 for each of the study crops.[6/] Least squares estimates of Y were obtained for the year 1980. The estimated 1980 yields of each crop relative to average 1961-65 yield [4, 5] are reported in Table 1. The regression estimates of a_i and b_i along with the t-values for b_i, are reported as inserts in Figures 10 to 24.

It may be observed that a relatively high t-value of both b_1 and b_2 is obtained for nearly every crop. In fact, for only one crop is a coefficient of regression insignificant at the 5 percent level. However, the 1980 yield estimates obtained from these two equation forms are often greatly different. As Stollsteimer, et al. [29, p. 87] concluded with regard to statistical cost functions, although the results are very dissimilar, respectable measures of correlation and reliability may be obtained from more than one equation. Therefore, absolute confidence was not placed in either of these sets of statistical estimates. Instead, these estimates were modified by the judgment of commodity specialists.

The tables and graphs containing historical data and statistical estimates of trend were taken to conferences with the respective specialists. Using this information as reference material, the following question was asked for each crop: "What do you consider will be the most likely level

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[6/] [4] for safflower and for 1965-66 yields of all field crops; [31] for all field crops, 1945-64, except safflower; [5] for all vegetable crops except potatoes; [33, 36] for potatoes.

of State average yield in California in 1980?" The background assumptions for these yield projections were as follows:[7]

1. Yield estimates to be based on reasonably expected adoption of known technology;
2. No continued major wars and no depression;
3. Target year 1980 will be a normal year with no unusual weather conditions, disease problems, etc.;
4. No shifts in production locations.[8]

The specialists' estimates of 1980 yield are recorded in Figures 10 to 24, along with the statistical estimates. Their estimates relative to the weighted average 1961-65 yield are provided in Table 1 and are the ones used to project yields in this report.

It will be noted that, with three exceptions, the specialists' estimates coincide with either the linear or curvilinear regression estimates or fall somewhere between them. Estimates for asparagus, processing tomatoes, and alfalfa are the only ones which are higher than the linear trend. The linear projection for asparagus is only 7 percent higher than average 1961-65 yield. The commodity specialists projected a slightly higher yield in 1980 (11 percent increase) as a result of expected denser plantings and some conversion to mechanical harvesting. The linear projection for processing tomatoes shows a 41 percent increase in 1980 yield over the base period average. Commodity specialists expect at least a 60 percent increase due largely to improved varieties with less waste during mechanical harvesting. The 15 percent linear increase in alfalfa yield by 1980 implies a State average of little more than six tons per acre. Many farmers currently produce alfalfa with yields markedly above this level. The commodity specialists expect slightly higher 1980 yields (6.3 tons per acre) with more general adoption of existing technology.

In the application of these estimates to HPA yields, it is assumed that (1) the yield of any crop will increase relatively the same in all HPAs, and (2) yields of all crops in a commodity group will increase at the same rate as the representative crop. Under these conditions, yield in each HPA will increase at the same rate as average State yield. The HPA estimates for 1980 are recorded in Tables 10 to 14.

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[7] The question and assumptions, except for the target year, are basically the same as those used by Dean and McCorkle [17, p. 11].

[8] The importance of this last assumption is obvious: the objective was to estimate the increase in yield that could be expected within an HPA, not because of production shifting to another HPA with a superior or inferior soil-climate mix.

Summarizing the opinions of the commodity specialists, future yields are expected to be influenced mainly by changes in plant structure, insect and disease control, fertilizer and chemical application, and management. Other changes include increased mechanization and improved cultural practices.

Changing plant structure includes the development of new varieties (e.g., hybrids; dwarf, double dwarf, and triple dwarf varieties). Technology affecting plant structure holds promise of tremendous impacts on crop yields. Technicians generally feel, for example, that even the recent large increases in grain sorghum yield reflect only the "first generation" of hybridization, and further improvements are inevitable.

Pathogens and insects currently have a severe impact on yields. Estimates of annual crop loss due to insects and disease run as high as 30 percent. Discovery of new controls will likely have a major impact on future yields. Systemic insecticides are currently being used widely, but development of systemic disease controls show substantial promise. Restrictions on the use of certain insecticides, such as DDT, will likely have more impact on the cost of insect control than on the effectiveness of control.

Discovery of new fertilizers is not expected. However, development of more effective growth regulation chemicals may be important.

Even if there were no new advances in the factors mentioned above, projected 1980 yield levels could be attained by improvements in management alone. As new technology expands the range of choices available to farm operators, farm management decisions become more complex and more important. While the optimum combination of resources does not necessarily mean higher yields, the tendency is in that direction.

NONLAND PRODUCTION COSTS

In this study, all costs, (except land rent) of producing a given crop activity in an area are estimated and aggregated for one acre of land for one year. These include annual cash production expenses and annual investment charges. The discussion which follows is divided into two parts: In the first, the methods used in estimating relative base period nonland costs among HPAs are explained. In the second, a coefficient for estimating 1980 costs is developed. This coefficient is used to update all cost categories for all crops in all HPAs.

Estimation of Representative 1965 Nonland Costs

The method used to estimate current costs involved developing a budget for a base area for each crop and then estimating physical input requirements and unit costs for other HPAs in relation to the base area. A standard set of unit costs for several cost items is established. These are recorded in Table 5. The cost of harvesting each crop is hypothesized to be a linear function of the acreage harvested and the yield per acre. That portion of the harvest cost which varies with yield is recorded in Table 6. Physical inputs and unit costs for most categories are estimated for a base area from recent Agricultural Extension Service sample cost studies. Rather than reproducing those budgets in this report, the specific county and year of the study used, along with the HPA it is judged to be applicable for, are recorded in Table 9.

Basic assumptions made in the extension of these cost estimates to an entire HPA include the following:

1. All land in soil categories 01-15 is adequately leveled for flood or furrow irrigation; in categories 21-24, sprinkler or contour irrigation is necessary because of greater slope.
2. All land, except soils 13 and 15, is leached of excessive salts, and necessary drains are installed; salts must be leached from soils 13 and 15, and artifical drainage may be required.
3. Except for land, all resources are available in unlimited supply in each HPA at given prices.
4. Tractors, equipment, and irrigation delivery systems depreciate as functions of time only.
5. In double crop activities, depreciable items used in the production of one crop can also be used in the production of the second crop.

A single total cost estimate applicable to existing developed agricultural land, except for soils 13 and 15, is made for each crop activity in an HPA. The annual investment cost in a double crop activity, based on the last two assumptions, is calculated as the sum of one-half the investment cost of each crop.

Differential physical input requirements are estimated for the nonbasic HPAs from cost studies in other counties and from conferences with commodity specialists. The calculation of costs in other HPAs are guided by the following assumptions:

1. Investment cost does not vary by HPA;
2. Sprinkler irrigation is used for all crops, except rice, on soils 21-24;[9]
3. The only unit costs which differ by HPA are water costs;
4. In the absence of specialist judgment or other evidence to the contrary, input requirements per acre are assumed to be the same in all HPAs.

Estimated 1965 total nonland cost of each model crop activity on one acre of HPA land in one year may be found in Tables 10 to 14.

Irrigation Requirements

Consumptive water use, irrigation efficiency, rainfall and its seasonal distribution all combine to determine the total irrigation water that must be applied to a crop. Irrigation requirements for crops in many areas of California have been estimated by various researchers [6, 13, 15, 16, 37, 38]. These estimates have been sorted along climatic zone boundaries, averaged, and checked with University of California commodity, irrigation, and climate specialists. The best estimates so obtained are summarized in Table 2.

Although specific studies comparing the irrigation efficiency on the different soil groups defined for this study have not been found, the commodity specialists generally agree that irrigation requirements on sandy soils are about 20 percent higher and on clay soils about 20 percent lower than on loam soils. Application efficiency with sprinkler irrigation is estimated to be 15 percent greater than with flood or furrow irrigation. Relative irrigation requirements on each soil group are recorded in Table 3.

9/ Although rice would not be irrigated by sprinklers, higher costs are also estimated for rice on these soils to account for additional leveling and contouring.

Water Costs

Estimated 1965 cost per acre foot of water is recorded in Table 4 for each HPA. These estimates are weighted averages of estimates derived for each county HPA. The sources of county HPA water cost data include previous water cost studies in the San Joaquin and Salinas Valleys [22, 23, 24], reported irrigation district charges [14], depth to groundwater maps and tables [7, 8, 9, 10, 11, 12], estimated future water costs by district on the Westside, San Joaquin Valley [25, 26, 27], Agricultural Extension Service sample cost sheets [38], and the judgment of engineering consultants, Louis R. Mitchell and Helen Peters, from the California Department of Water Resources.

An extensive study has been undertaken by Moore and Snyder [24] to determine pumping lifts in the San Joaquin Valley. In reporting their conclusions, they defined areas of similar pump lift. Because surface water supplies a significant proportion of total irrigation water used there, they followed their initial study with an analysis of surface water costs for the same areas. They computed average water cost for each area based on relative shares supplied by surface and groundwater sources [22]. These latter figures were used exclusively in this study for the San Joaquin Valley, except for the Westside. Water cost per acre foot in each HPA is computed by weighting Moore and Snyder's figure by the proportion of the HPA in each of their areas.

For the Westside, cost estimates of water to be delivered from the California Aqueduct have been obtained from the water agencies that will distribute this water [25, 26, 27]. Their cost estimates generally are for water at canalside. To these figures are added the estimated cost of distribution. The water costs at the headgate thus derived are averaged with Moore and Snyder's estimates weighted by the relative area of the HPA covered by each source.

In most other areas of the State, water cost is estimated by directly averaging costs from surface[10] and groundwater[11] sources. It is expected that irrigation districts provide virtually all of the water within their geographic boundaries, and groundwater sources supply the residual in each HPA. In those counties for which neither surface nor groundwater data are available, water cost is estimated from county Agricultural Extension Service estimates [38].[12]

Reclamation Costs

Barley has the highest tolerance to saline conditions of any crop in the study [3, p. 10]. Even with its relatively high tolerance, barley yields are reduced by 10 percent at the estimated typical salinity levels of soils 13 and 15.[13] The only crop activities permitted to enter the optimal solution on unreclaimed soils 13 and 15 are the nonirrigated barley activities. The rationale behind permitting only these activities is this: if water is inexpensive enough to make irrigation profitable without reclamation, it will be more profitable if the soil is first reclaimed of excessive salts.

Virtually complete reclamation of the top three feet of soil is specified as prerequisite to the production of all other crop activities, except rice. For rice production, it is only necessary to remove salts from the top 3-6 inches of soil.

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[10] The cost of surface water in irrigation districts is calculated by dividing total revenue received from farm deliveries by the quantity delivered for agricultural use. This is an important difference from taking the reported cost per acre foot, because the latter often excludes charges levied per acre irrigated or per assessed valuation.

[11] The cost for groundwater was calculated by obtaining data on depth to the water table [7, 8, 9, 10, 11, 12], adding 40 feet to account for drawdown, and multiplying the sum by $0.045 per foot.

[12] The average of the county cost sheet estimates is assumed to be the average water cost on all alluvial and basin soils in the county. An additional pump lift of 50 feet is added to estimate water cost on terrace soils.

[13] The salinity level of a soil is determined by measuring its electrical conductivity. The estimated typical electroconductivity of a saturated extract of soil 13 or soil 15 is 18 millimhos per centimeter.

Reclamation costs, both one-time outlays and periodic costs, for each saline and alkaline HPA have been estimated in consultation with university irrigation specialists Larry Booher and Robert Ayers and soils specialist Gordon Huntington. An annual charge using a 6 percent interest rate and straightline depreciation are computed and summarized in Table 7 for the alternative cropping activities.

Estimation of 1980 Nonland Production Costs

The cost of producing an acre of any crop in 1980 will undoubtedly be different than it was in 1965. But attempting to project the magnitude of future changes in costs appears to be even more risky than trying to project future changes in crop yields. Both are subject to an infinite number of unknowns. And not only are future production costs uncertain, but detailed historical data on which technically sound projections can be based is sketchy also. Therefore, in this report a relatively simple procedure, based on aggregate production cost changes in the past, is used to project 1980 costs.

The unit price of all nonland agricultural inputs in the United States has increased 16.6 percent during the 15-year period between 1945-49 and 1960-64 [32, 35]. According to Farrell, "The [California] farm sector is now [year 1965] producing nearly one-third greater output, with only 3 percent more total inputs than in 1950" [1, p. 6]. Since cropland in California during the period 1950-65 actually decreased slightly, the increase in nonland inputs was more than 3 percent. Our best estimate is that nonland inputs used per harvested acre in 1965 were about 5 percent greater than were used in 1950. Assuming that the trend of the past 15 years is continued during the next 15, nonland production costs will increase by about 23 percent between 1965 and 1980 (i.e., input prices will increase an average of 17 percent, and input requirements per acre of land will increase 5 percent). Excluding harvest costs, the 1980 per acre cost estimates recorded in Tables 10 to 14 are obtained by projecting a 23 percent total increase. Because harvest costs are a function of yield, total harvest costs increase more than 23 percent since yields are projected to increase more than 5 percent.[14]

A NOTE ON THE BARLEY-GRAIN SORGHUM DOUBLE CROP ACTIVITY

Three basic double crop activities are specified in this study: lettuce-lettuce,[15] broccoli-lettuce, and barley-grain sorghum. For the first two combinations, the climate zones identified by the specialists as capable of producing two crops in a year can normally produce two crops every year. For the barley-grain sorghum combination, this is not so. Fourteen climates are listed in which two crops can be harvested in a majority of years, but in only two are the weather conditions sufficiently consistent for continuous double cropping.

The proportion of years in which two crops of feed grains can be harvested in each of the double cropping climates was estimated by the commodity specialists. The remaining years are assumed equally divided between the production of barley and grain sorghum.

Since resource restraints are specified in units of net agricultural land acres for a time period of one year, the model cost and yield parameters must be relevant for crop production on one acre of land in a year. Single crop activity estimates derived on this basis are the same as for one harvested acre. For the barley-fallow activity, the estimates per annual unit of land are one-half the cost and yield estimates per harvested acre. Lettuce-lettuce and broccoli-lettuce double crop activities include the cost of producing both crops and the yield estimates are for both on an acre of land in one year. A crop of barley and of grain sorghum cannot be harvested every year from the same land in all HPAs for which a double crop feed grain activity is specified. Hence, the cost and yield estimates per harvested acre of each crop must be reduced by the proportion of years in which each commodity is not grown in order to be representative of one acre of land.

---

[14] An alternative to this procedure of total cost projection would have been to group inputs into several major categories such as skilled labor, unskilled labor, machinery, water, fertilizer and chemicals, etc. Then the cost of each category could have been projected at its own rate, based possibly on historical trends (if adequate historical data were available). Assuming that the input mix will remain constant to 1980, this procedure should provide more realistic estimates of actual 1980 costs. For example, because labor costs have risen at a more rapid rate in the recent past than machinery prices, one might expect the 1980 nonland cost estimates computed in this report to be underestimated for the labor-intensive crops or areas and overestimated for the capital-intensive ones. However, it should be observed that there is considerable substitution of one input for another over time, especially between labor and capital. Rapidly increasing labor costs have been largely responsible for the trend to mechanize formerly labor-intensive production practices. Therefore, the major problem in projecting the cost of input categories at different rates, if based on historical data, is failing to foresee the substitution that will take place between categories. It appears to the authors that the distortions caused by projecting most costs to increase at the same rate between 1965 and 1980 may be little more than those caused by projecting the cost of each individual category independently. The possibility of input substitution is very important and also difficult to predict.

[15] Three different seasonal mixes of the lettuce-lettuce double crop activity are possible.

Costs are further modified to reflect the ratio of double to single crop years for each commodity. The cost and yield estimates for both crops are treated alike since, by assumption, they are grown the same proportion of the time.

There is no difference in the crop yield estimates obtained between the single and double crop activities. The only difference in either crop's cost estimate is in the investment category, which in a double crop activity is equal to one-half the single crop investment cost. To illustrate, for either barley or grain sorghum, define:

a = proportion of years the crop is grown,
b = proportion of years the crop is not grown,
a_1 = proportion of years crop is grown in double crop activity,
a_2 = proportion of years crop is grown in single crop activity,
I_c = investment cost in single crop activity for crop year,
C_c = total nonland cost for crop year,
Y_c = yield for crop year,
I = annual investment cost in amalgamated activity,
C = total annual nonland cost in amalgamated activity,
Y = annual yield;

then

$$a + b = 1, \tag{3}$$

$$a_1 + a_2 = a; \tag{4}$$

and

$$I = (.5a_1 + a_2)I_c, \tag{5}$$

$$C = a(C_c - I_c) + I, \tag{6}$$

$$Y = aY_c. \tag{7}$$

The total cost figure for the amalgamated double crop activity is obtained by summing Equation 6 for both crops.[16] See Table 8 for the values of coefficients a, a_1, and a_2 in those climates for which a double cropping activity is specified.

An alternative to this amalgamation procedure would have been to assume that in any climate where two feed grain crops can be produced in a majority of years, two can be produced every year. However, this alternative, although simpler, is a considerably less realistic method of determining the amount of land required for feed grain production.

SUMMARY

In this report, we have developed current and projected 1980 estimates of typical annual yield and nonland production costs for 15 field crops and vegetables in 24 different crop activities. Based on a consistent set of assumptions throughout the State, these estimates have been developed in all or part of 95 homogeneous production areas (HPAs). The HPAs, also defined in this report, consist of all significant agricultural areas in California. They are delineated on the basis of similarity of soil, water, and climatic conditions.

The reader is reminded that these estimates were not derived from an exhaustive survey of farmers in each area. Rather, knowledgeable persons in each county and at the state level were consulted for their evaluations. The 1980 estimates are a single set of conditional projections based on only one of many possible groups of underlying assumptions. Actual yields and costs in 1980 will vary from those projected here to the extent that actual conditions vary from those assumed in the analysis.

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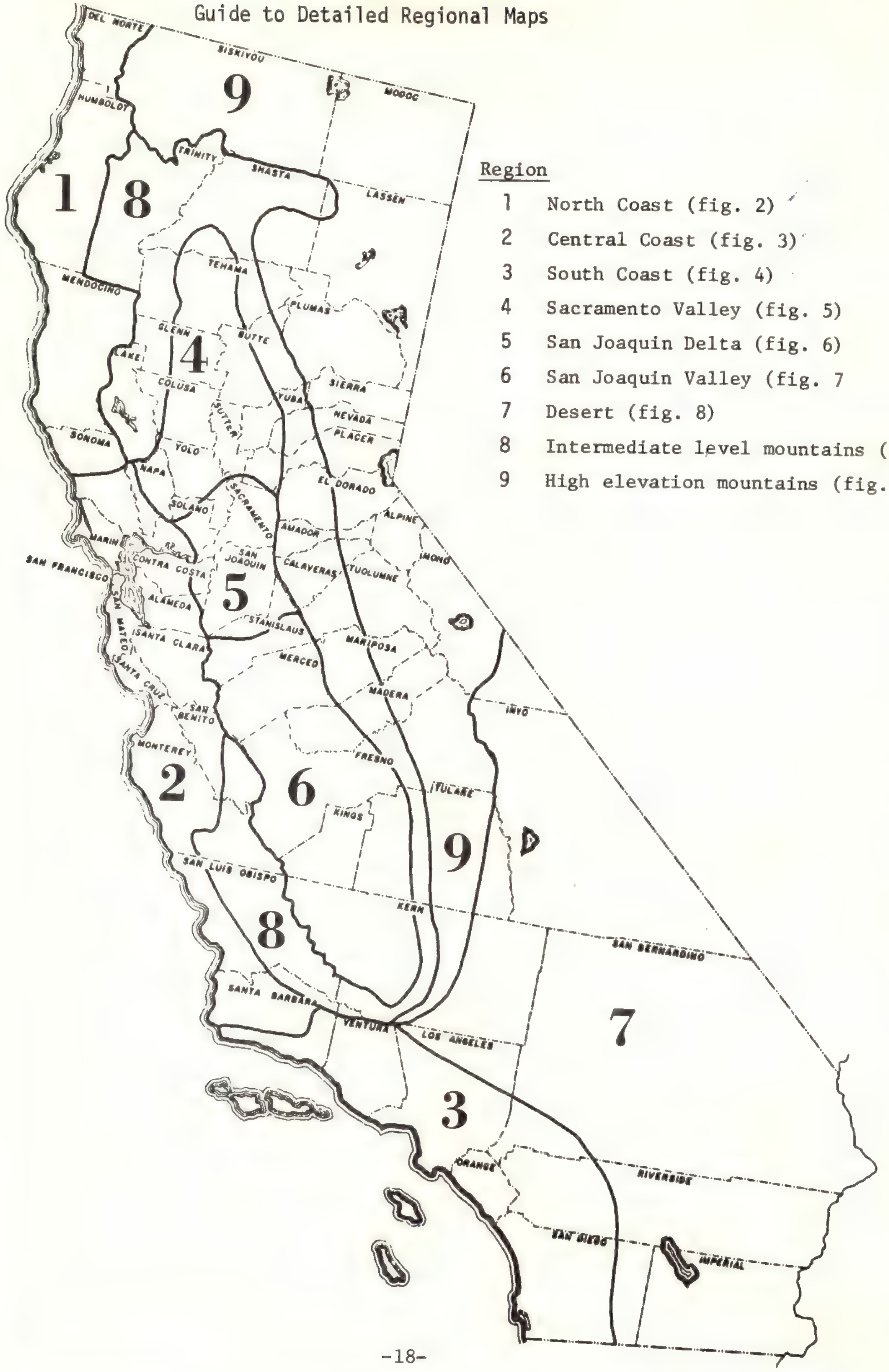
[16] No assessment is made here of costs incurred in growing a crop which cannot be harvested. It is assumed in all cost estimates in this report that any crop planted will be harvested.

FIGURE 1
Guide to Detailed Regional Maps



Region

1	North Coast (fig. 2)
2	Central Coast (fig. 3)
3	South Coast (fig. 4)
4	Sacramento Valley (fig. 5)
5	San Joaquin Delta (fig. 6)
6	San Joaquin Valley (fig. 7
7	Desert (fig. 8)
8	Intermediate level mountains (fig. 9)
9	High elevation mountains (fig. 9)

FIGURE 2

Region 1 – North Coast

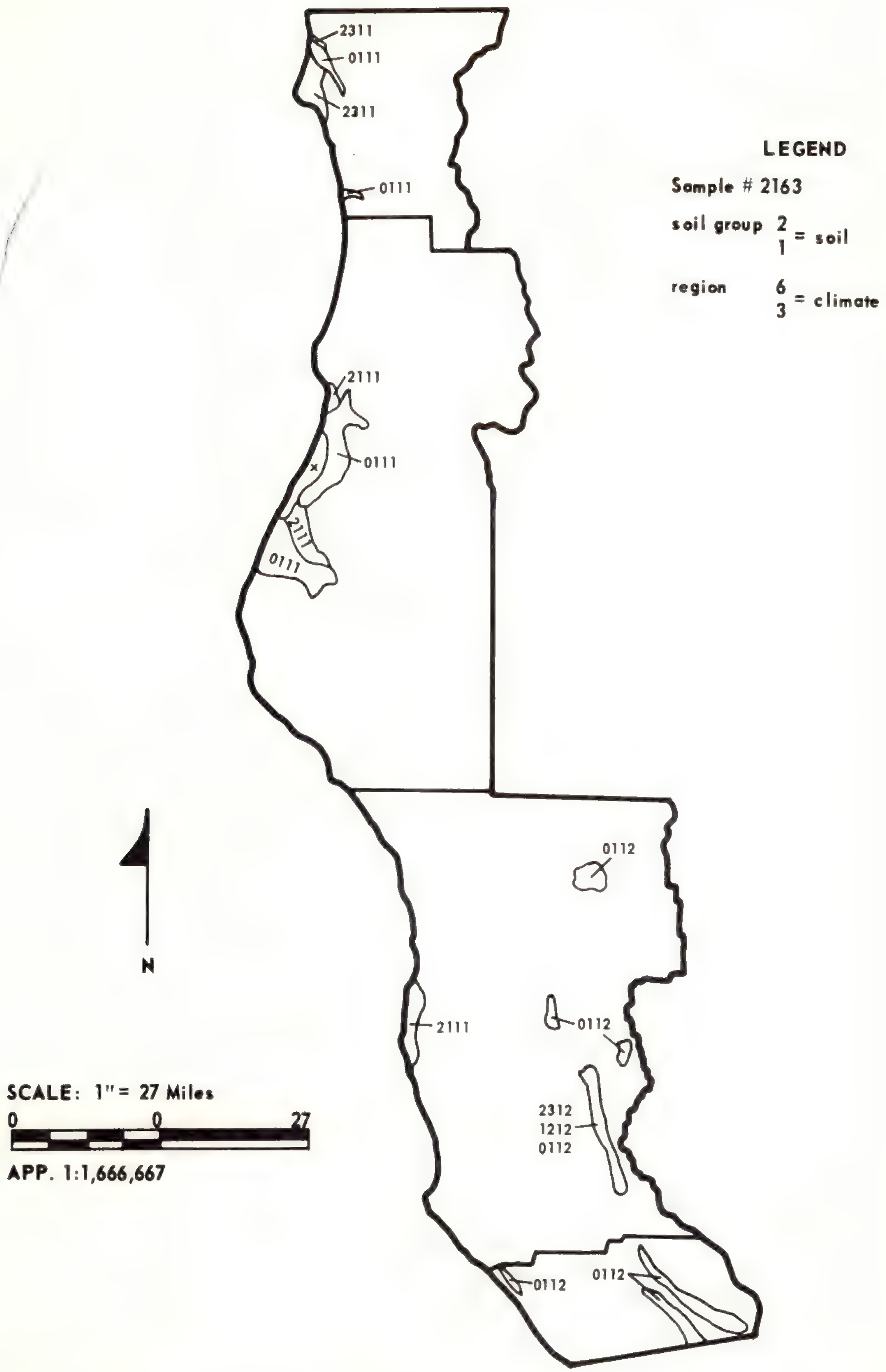


FIGURE 3

Region 2 – Central Coast

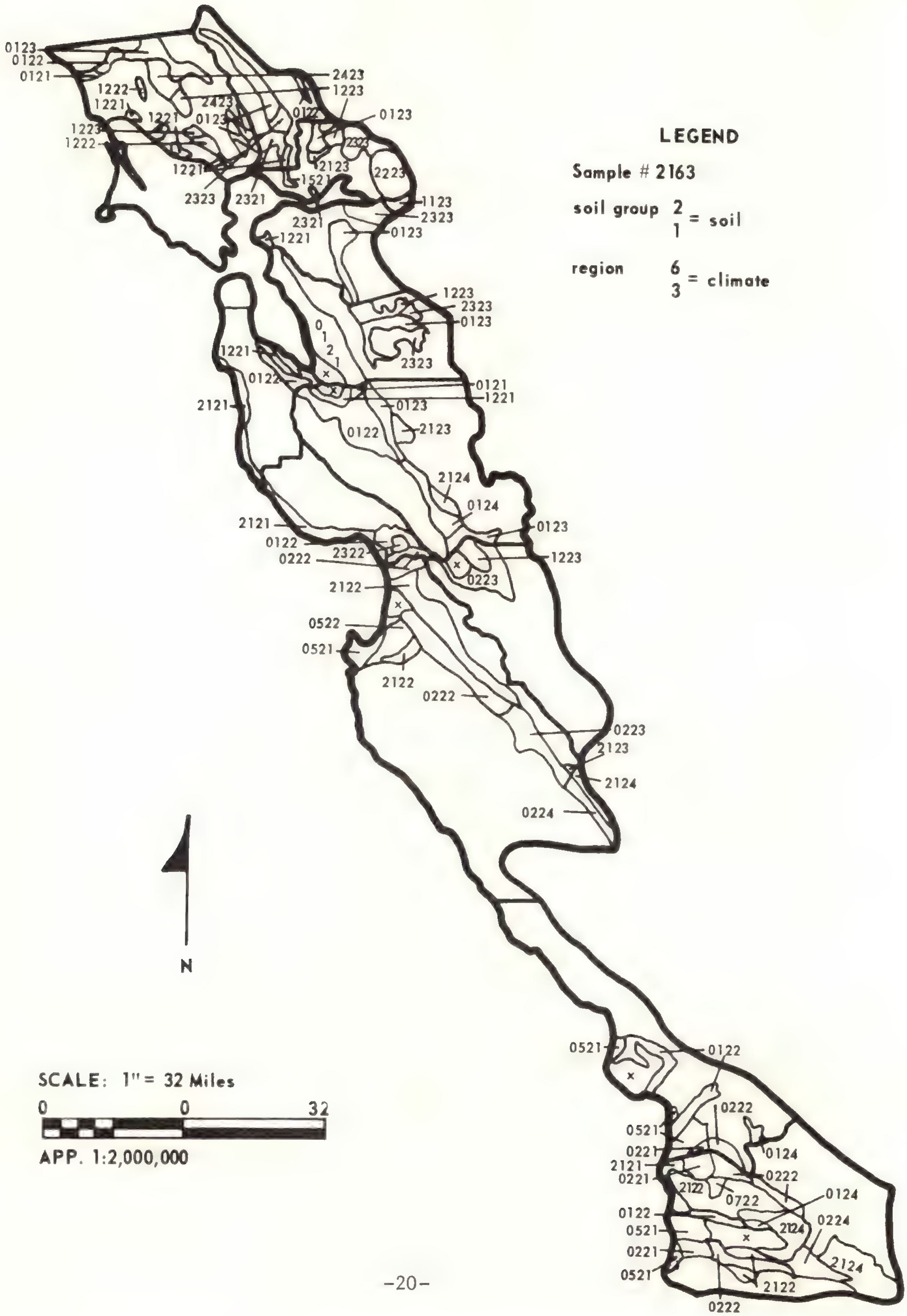


FIGURE 4

Region 3 – South Coast

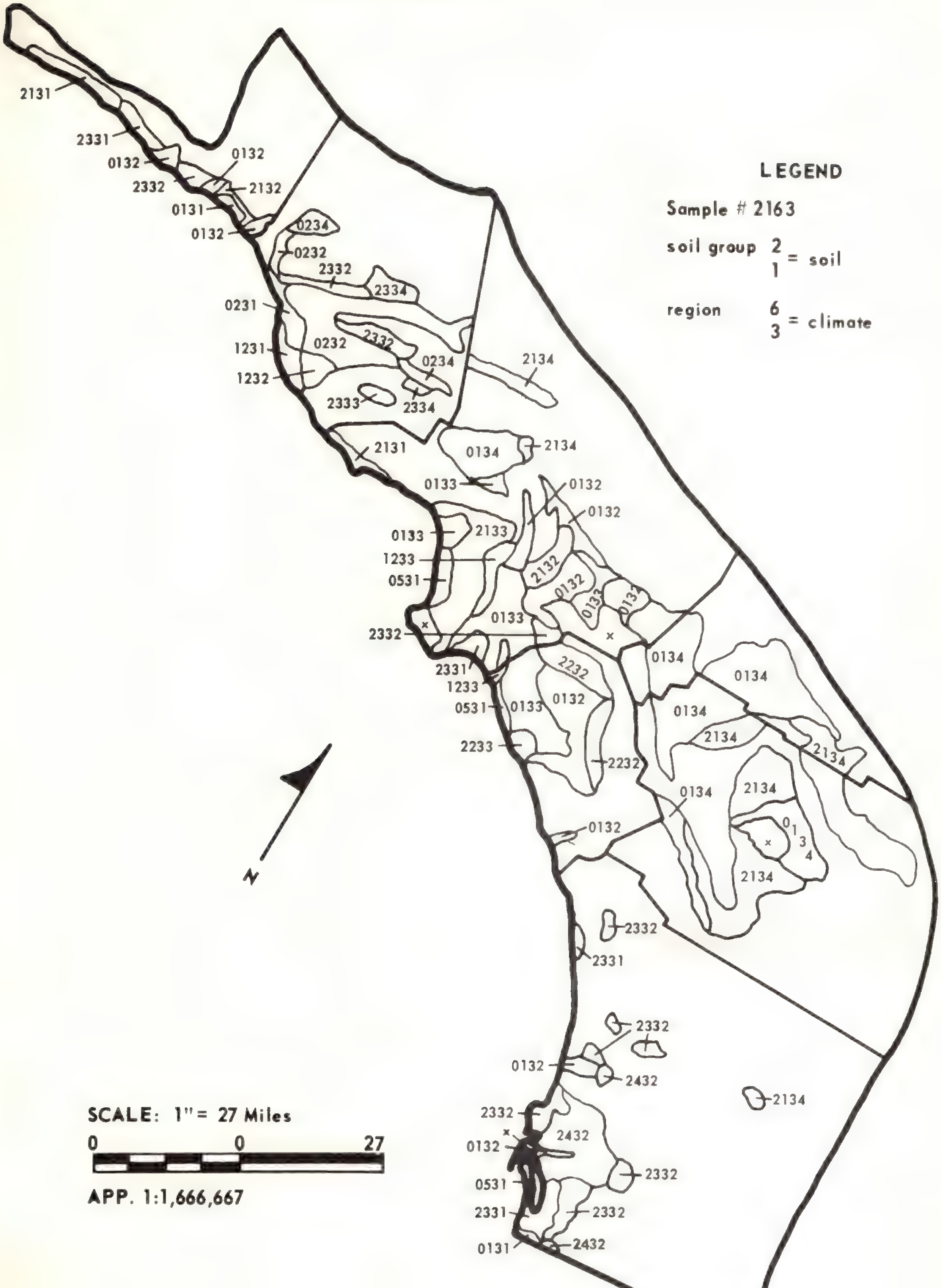


FIGURE 5

Region 4 – Sacramento Valley

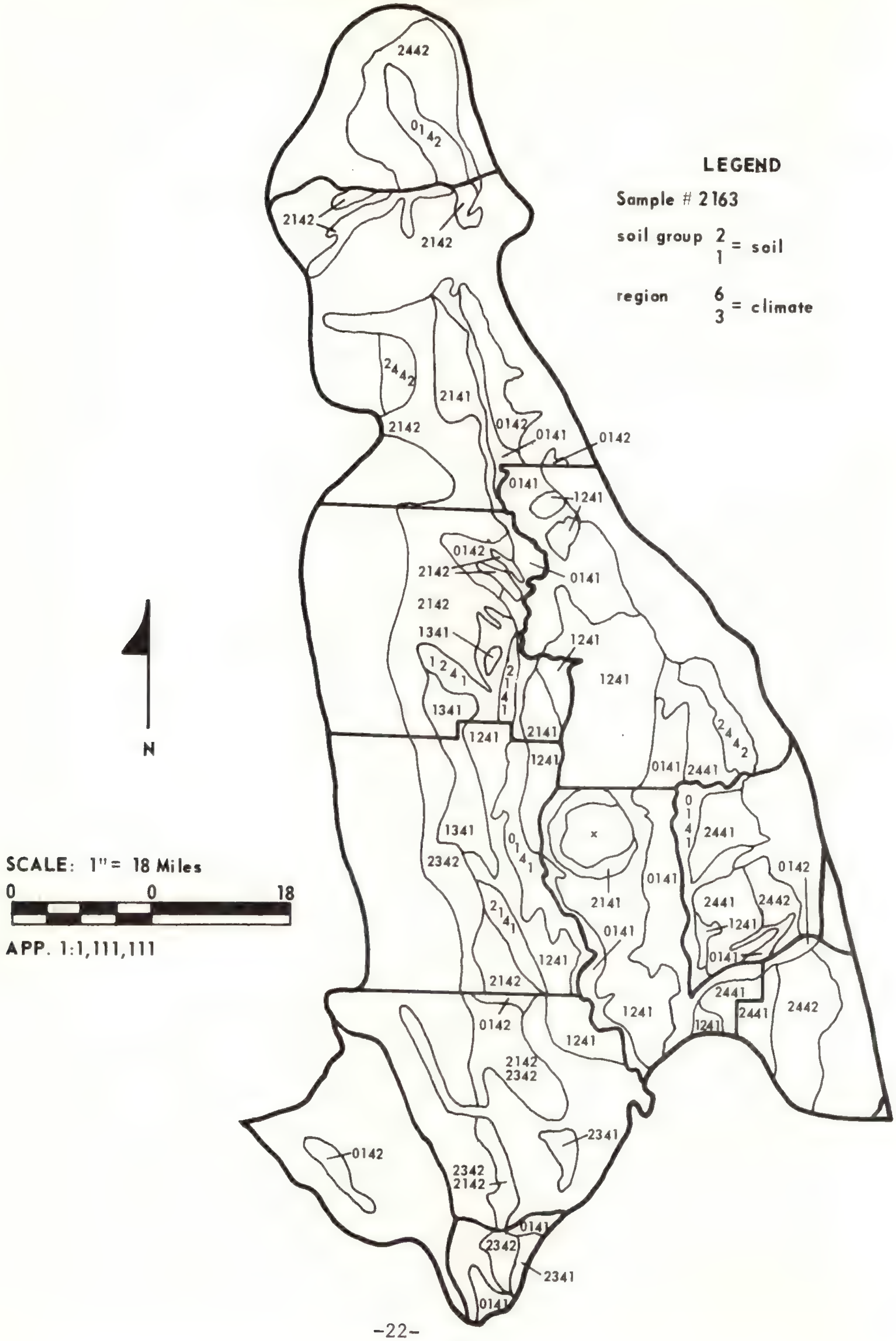


FIGURE 6

Region 5 – San Joaquin Delta

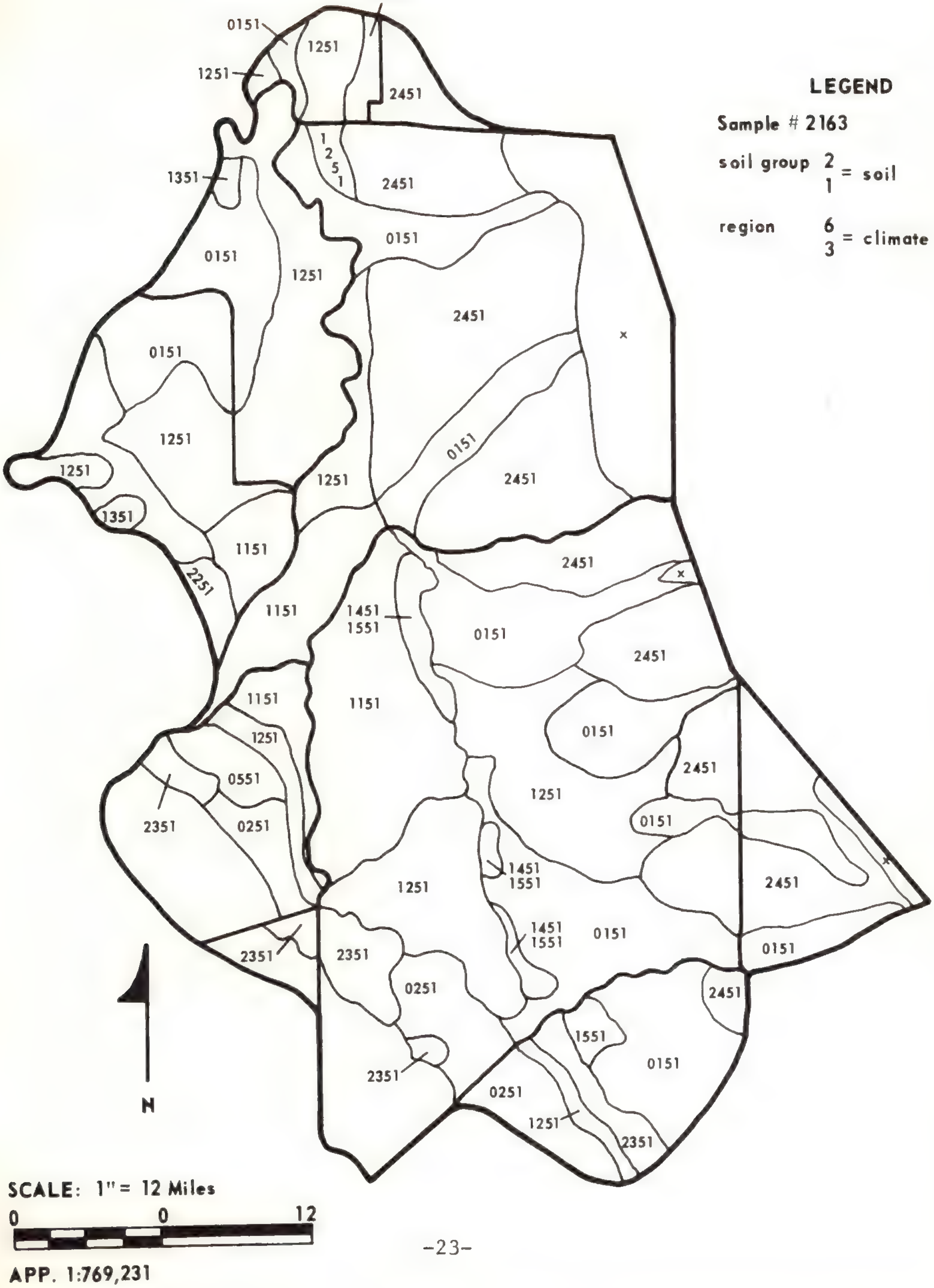


FIGURE 7

Region 6 – San Joaquin Valley

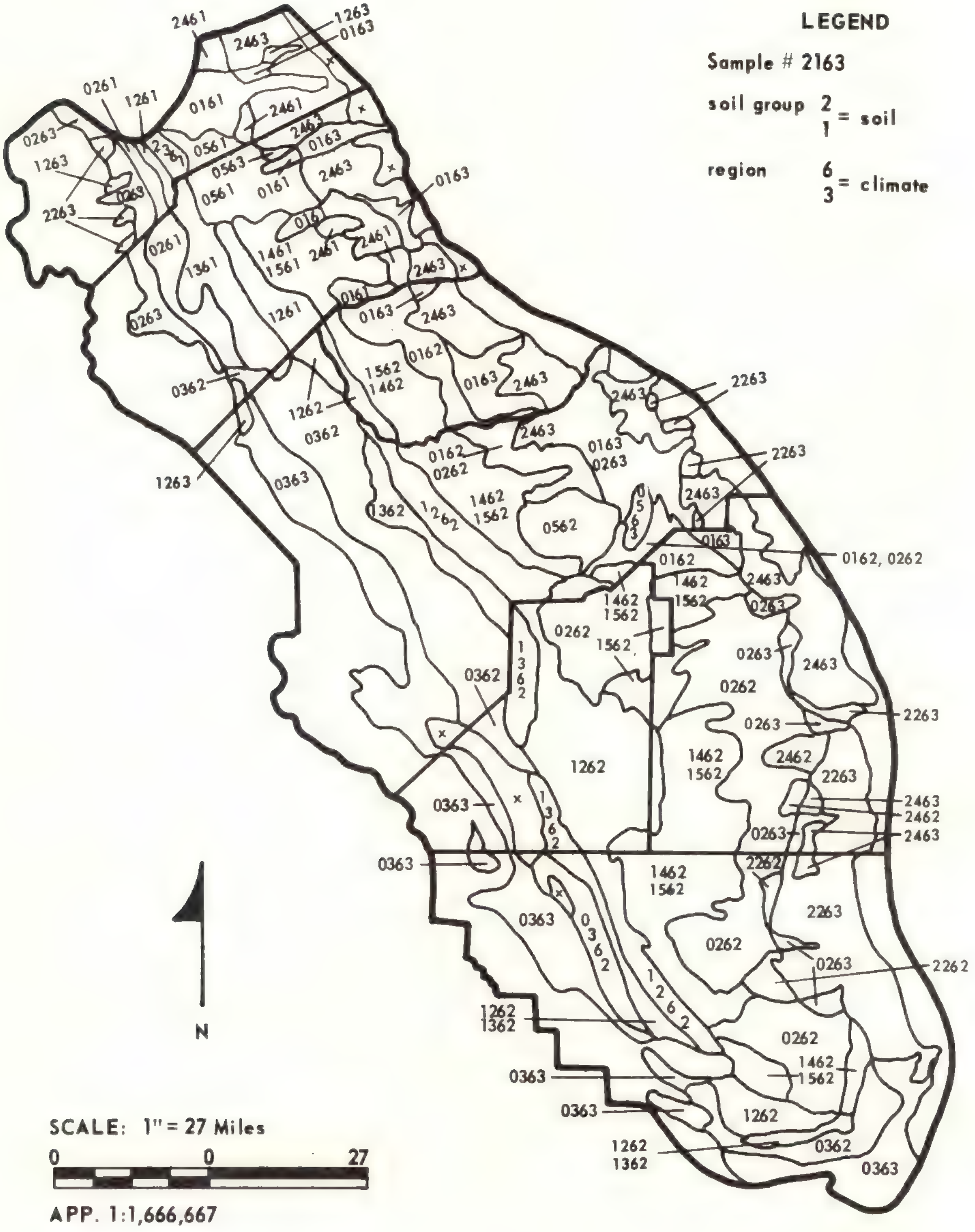
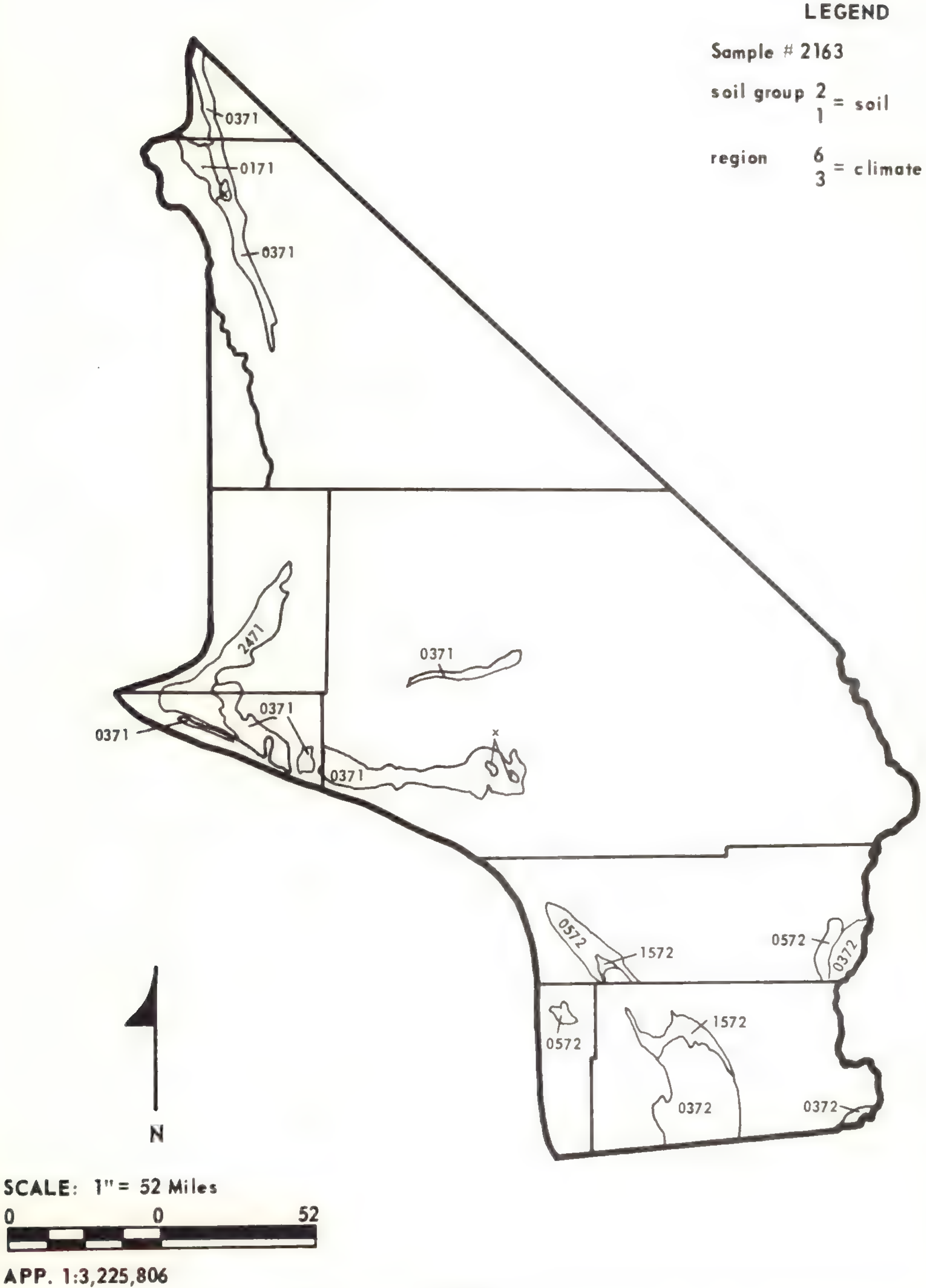


FIGURE 8

Region 7 – Southern California Desert



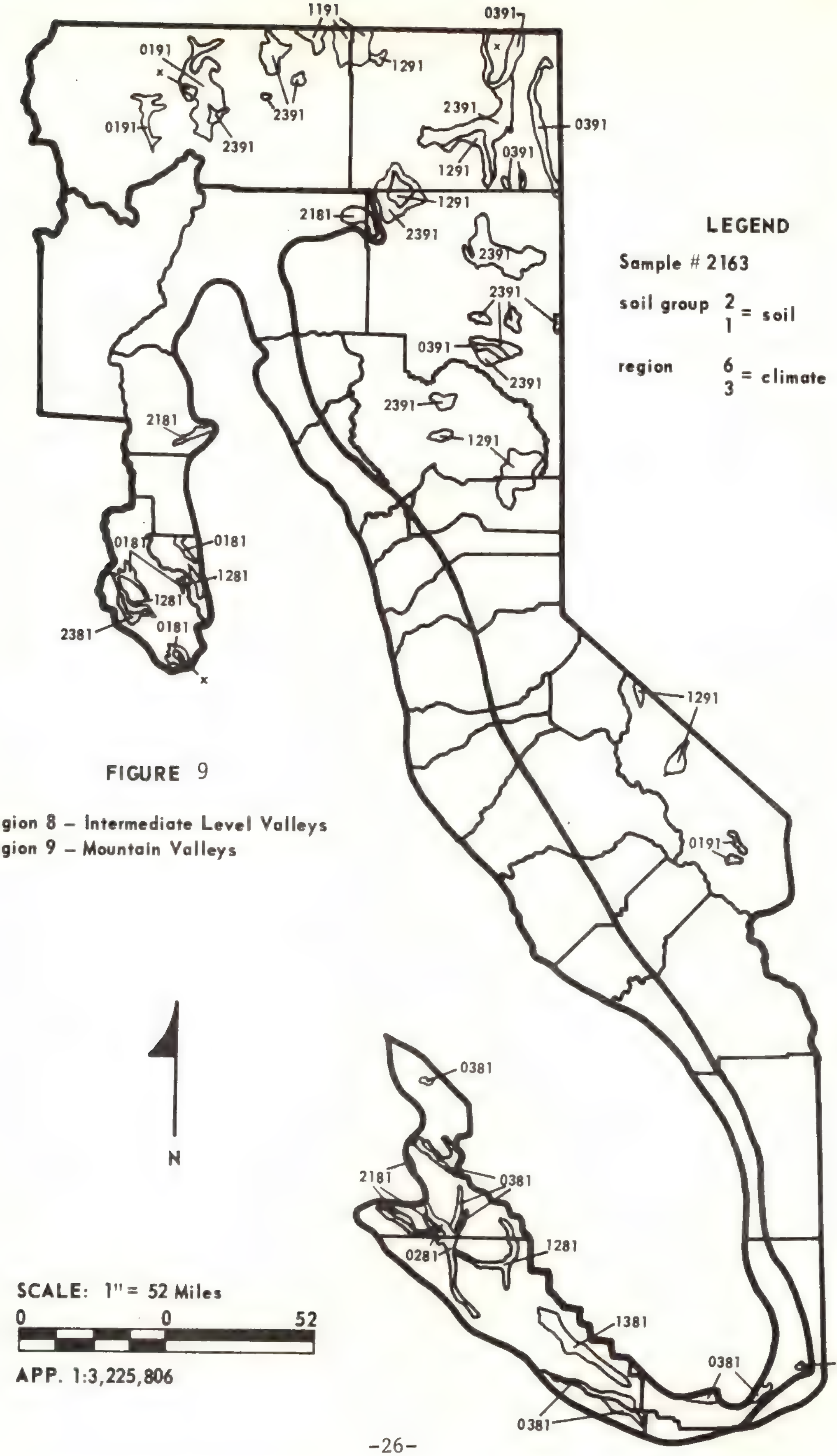
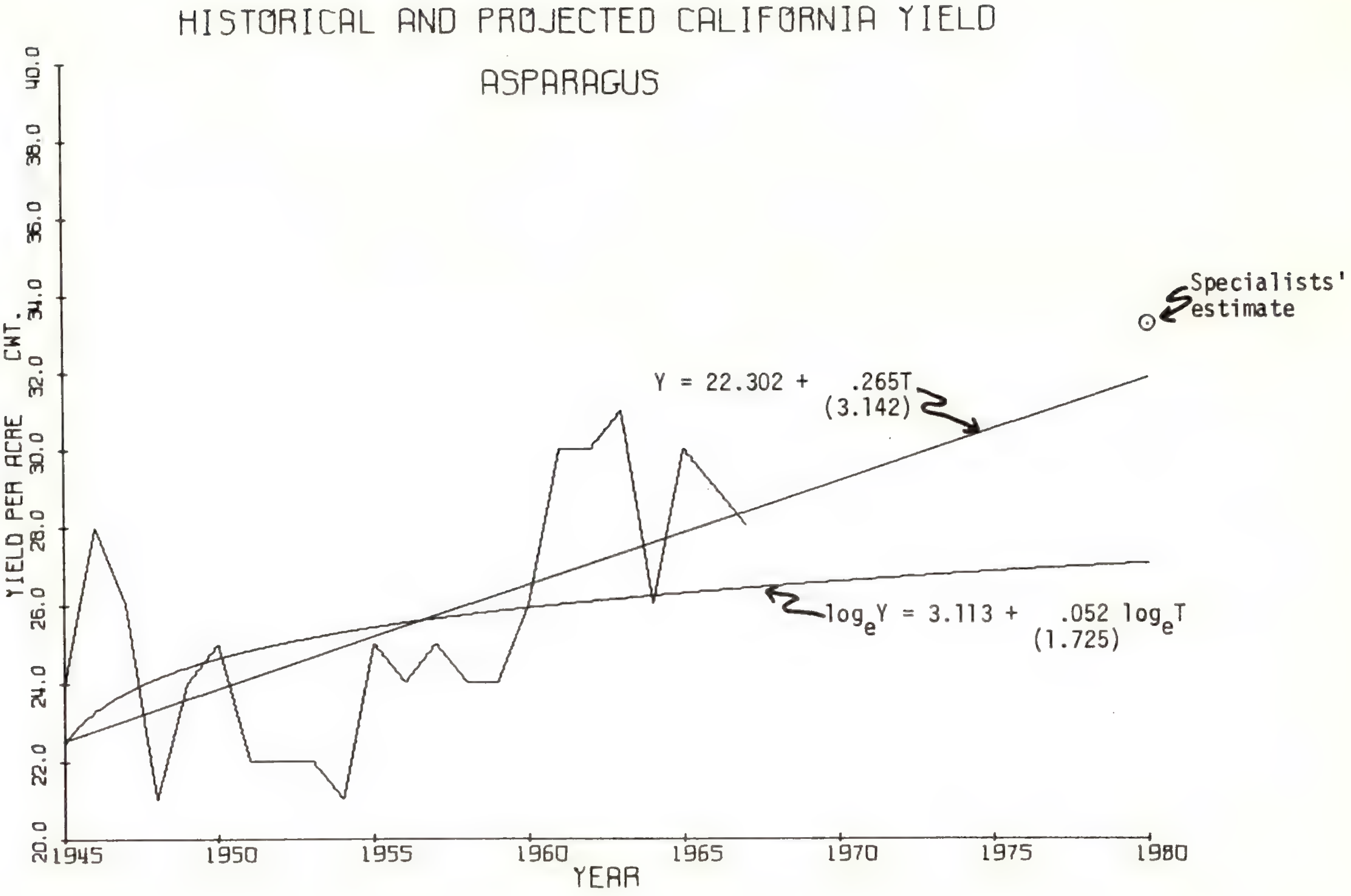


FIGURE 9

Region 8 – Intermediate Level Valleys
Region 9 – Mountain Valleys

FIGURE 10



HISTORICAL AND PROJECTED CALIFORNIA YIELD

ASPARAGUS

FIGURE 11

HISTORICAL AND PROJECTED CALIFORNIA YIELD
BROCCOLI

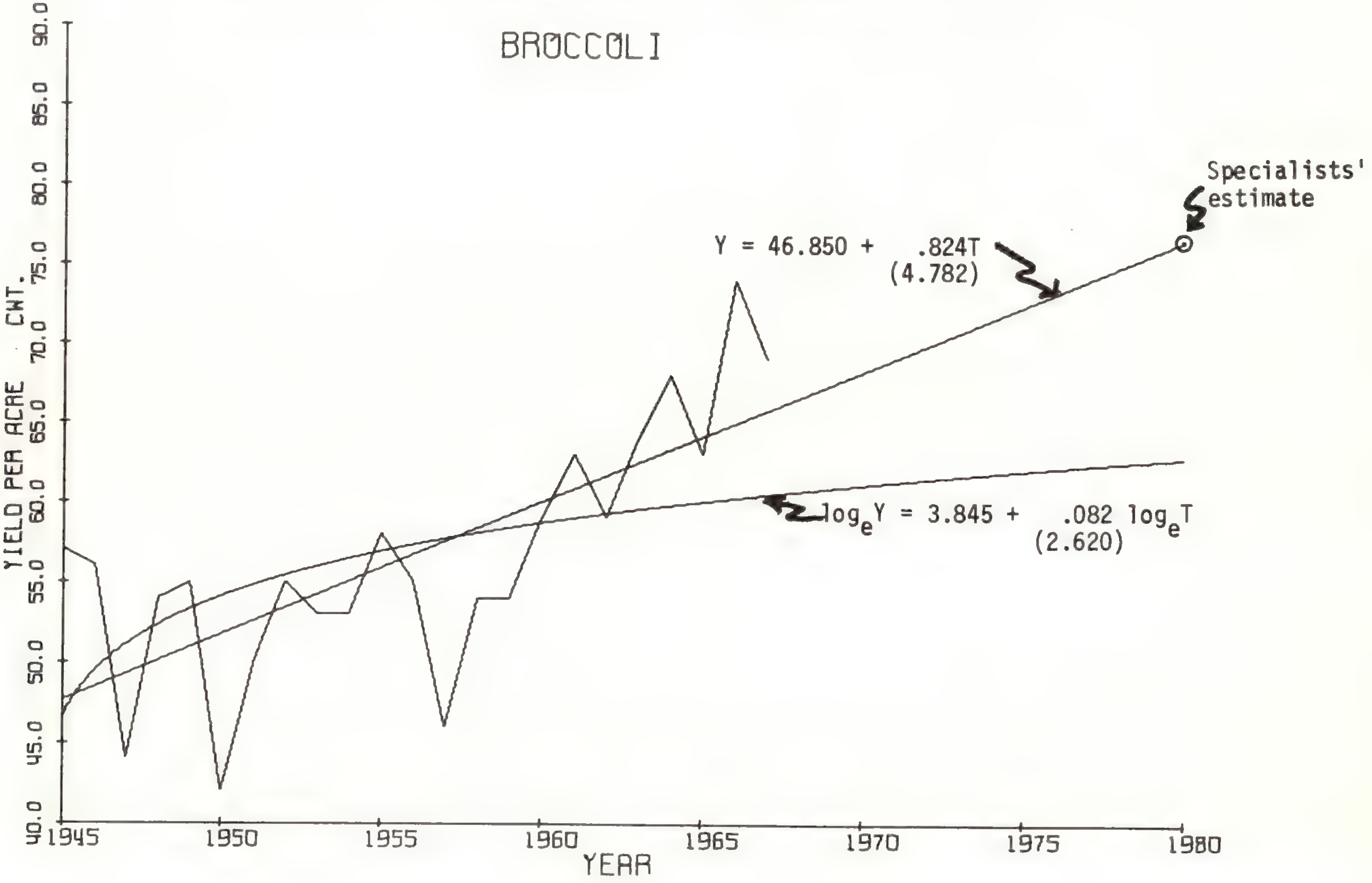
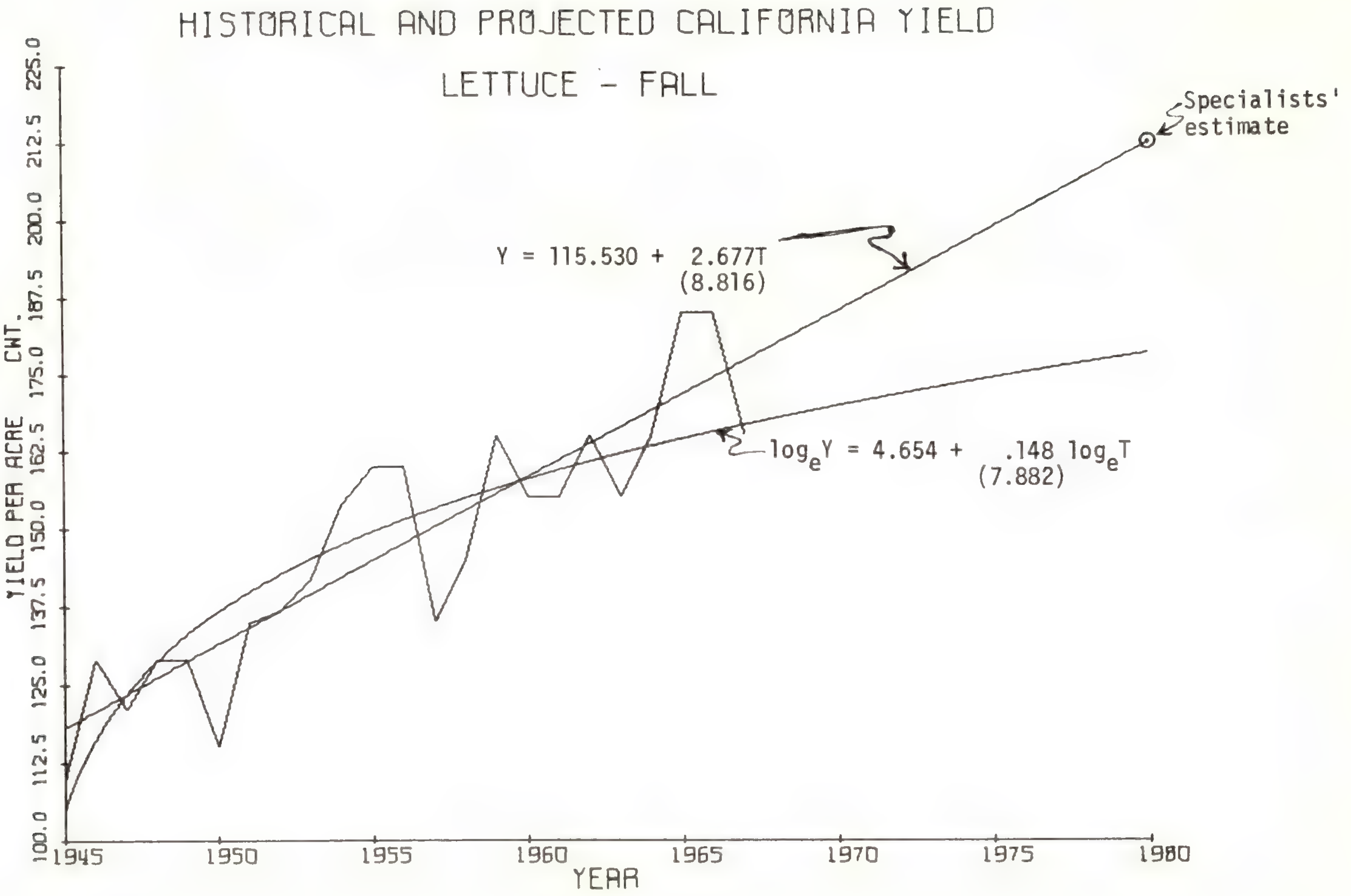


FIGURE 12



HISTORICAL AND PROJECTED CALIFORNIA YIELD

LETTUCE - FALL

FIGURE 13

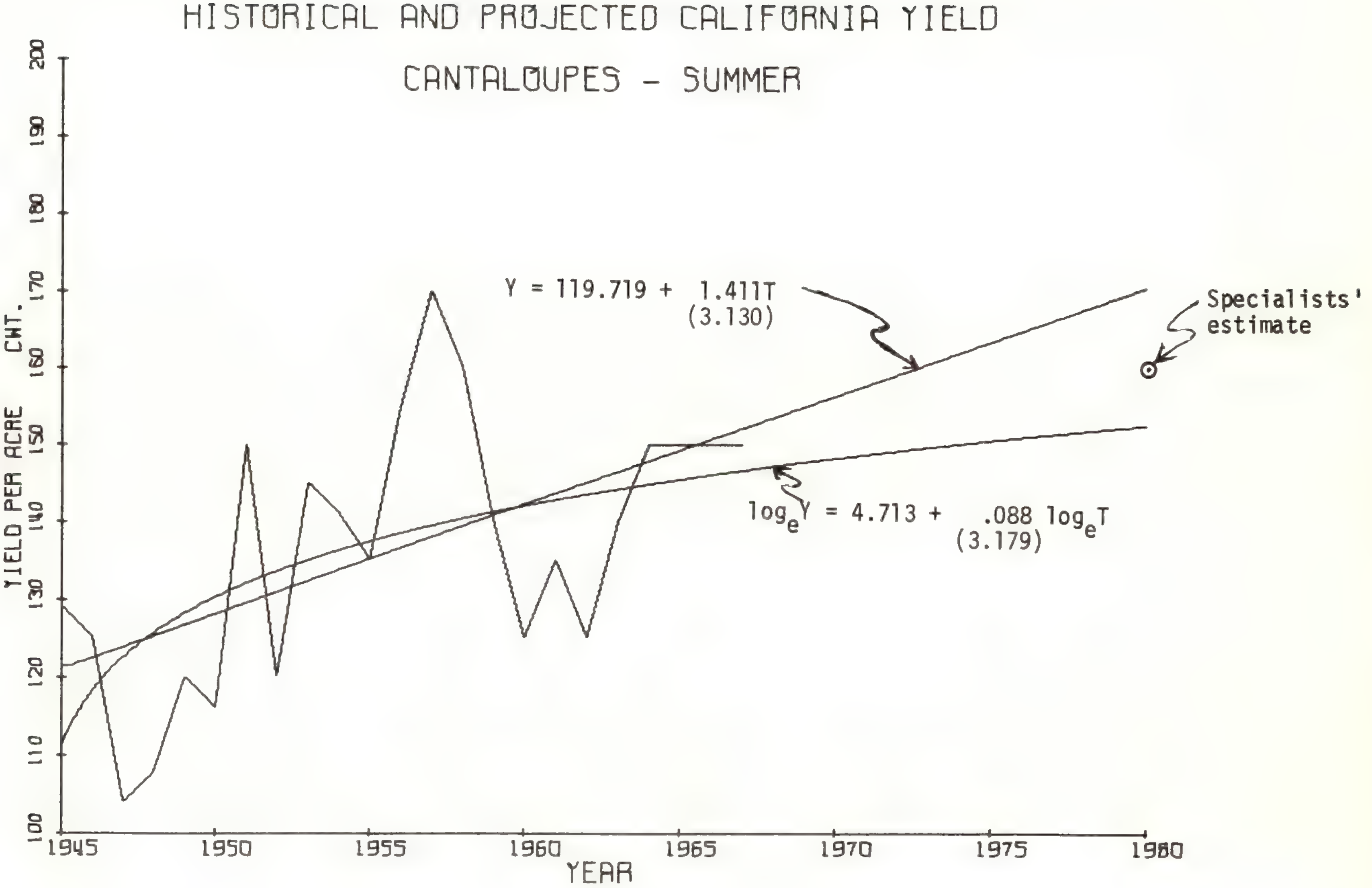
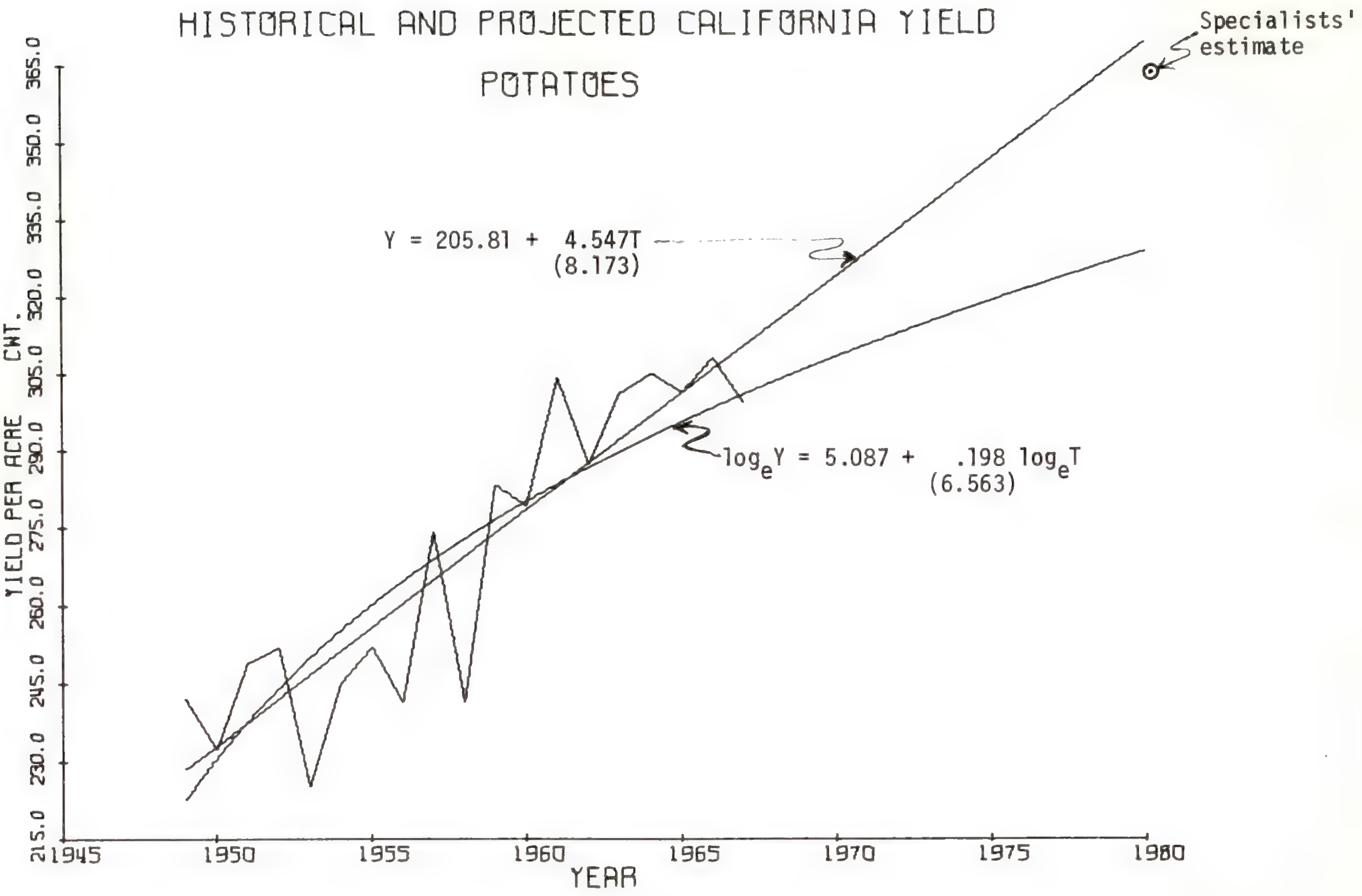
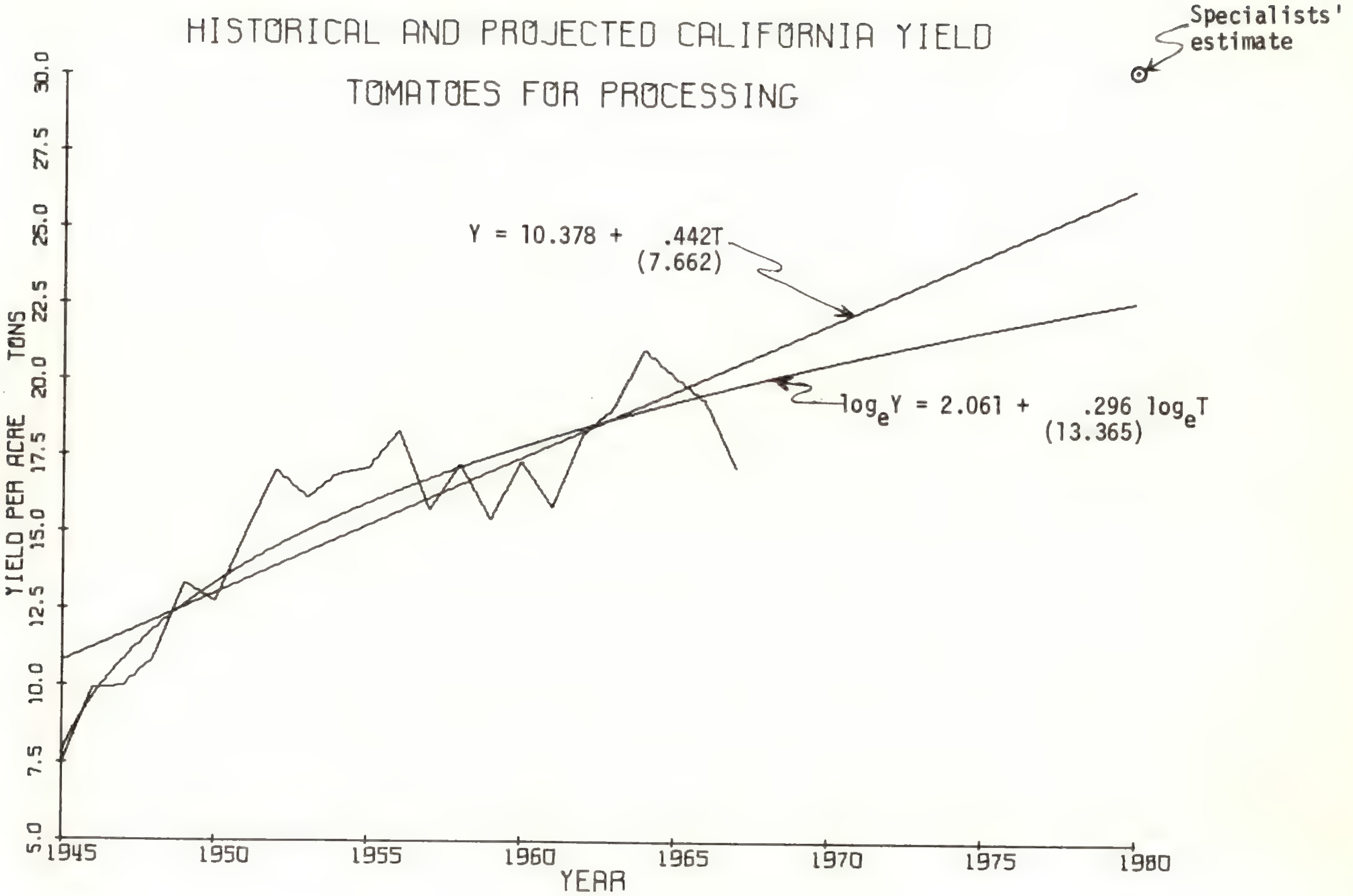

HISTORICAL AND PROJECTED CALIFORNIA YIELD
CANTALOUPES - SUMMER
YIELD PER ACRE CWT.
100
110
120
130
140
150
160
170
180
190
200
YEAR
1945
1950
1955
1960
1965
1970
1975
1980
Y = 119.719 + 1.411T
(3.130)
log_e Y = 4.713 + .088 log_e T
(3.179)
Specialists' estimate

FIGURE 14



HISTORICAL AND PROJECTED CALIFORNIA YIELD POTATOES

FIGURE 15



HISTORICAL AND PROJECTED CALIFORNIA YIELD

TOMATOES FOR PROCESSING

FIGURE 16

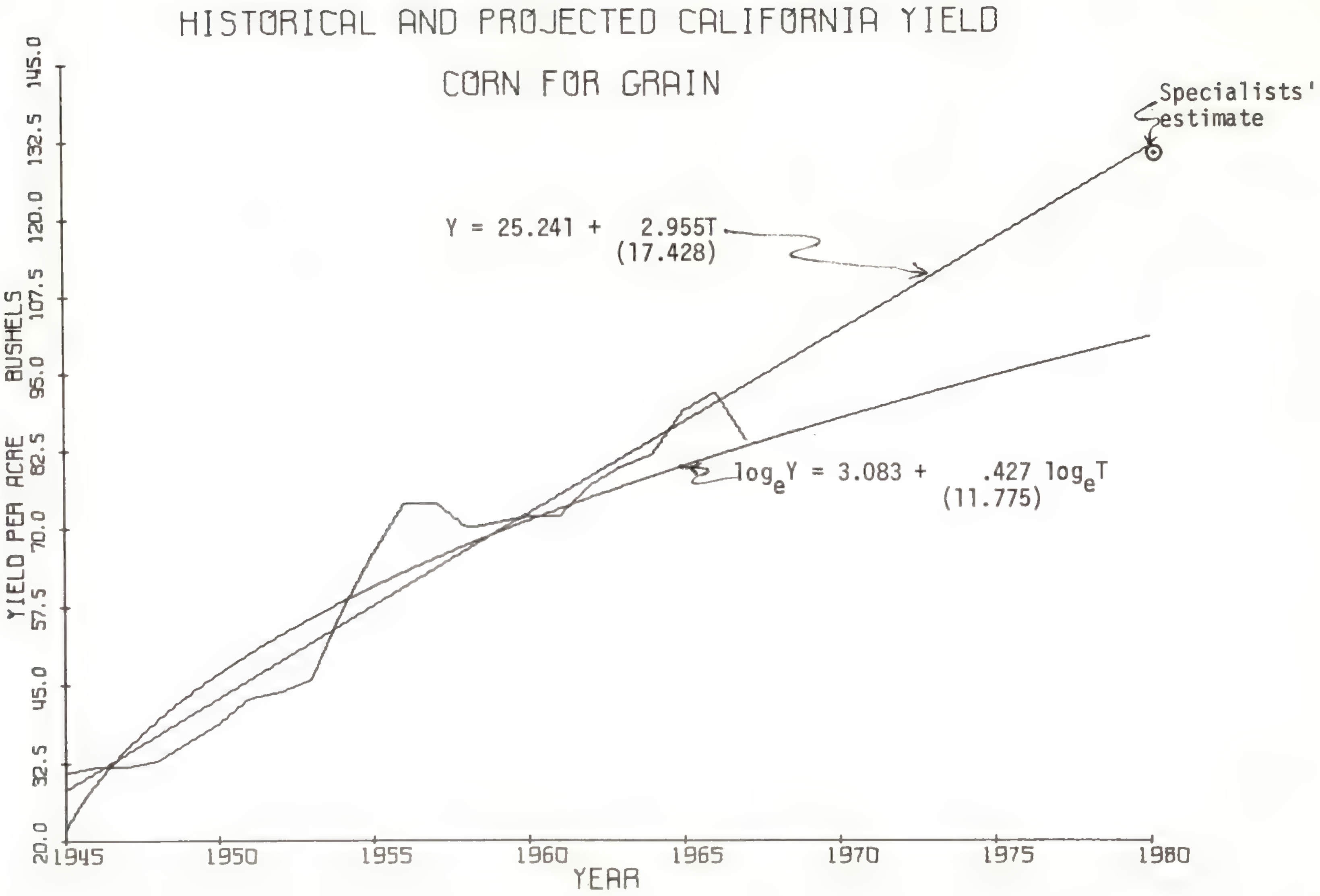

HISTORICAL AND PROJECTED CALIFORNIA YIELD
CORN FOR GRAIN
YIELD PER ACRE BUSHELS
145.0
132.5
120.0
107.5
95.0
82.5
70.0
57.5
45.0
32.5
20.0
1945
1950
1955
1960
1965
1970
1975
1980
YEAR
Specialists' estimate
Y = 25.241 + 2.955T
(17.428)
$\log_e Y = 3.083 + .427 \log_e T$
(11.775)

FIGURE 17

HISTORICAL AND PROJECTED CALIFORNIA YIELD

BARLEY

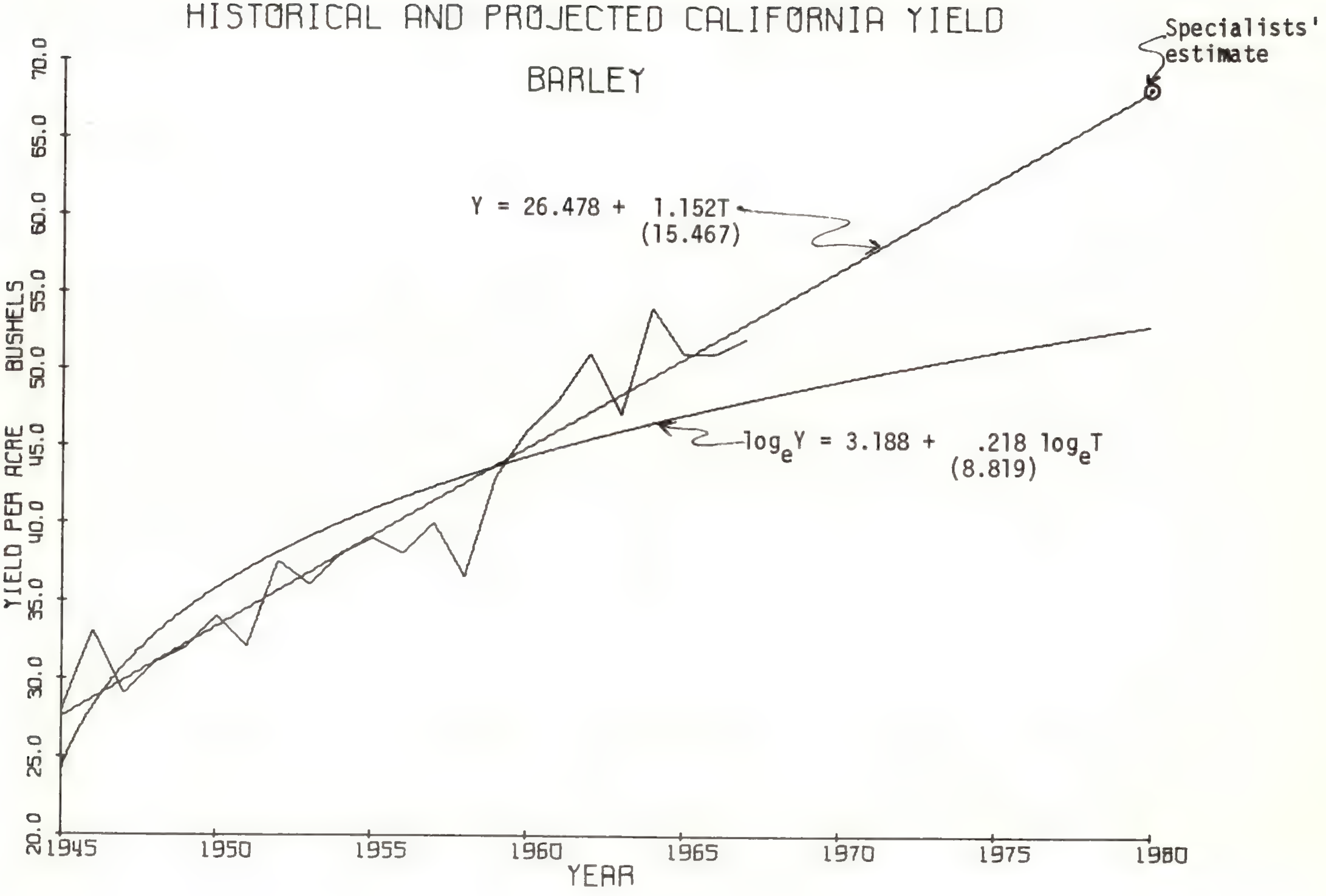


FIGURE 18

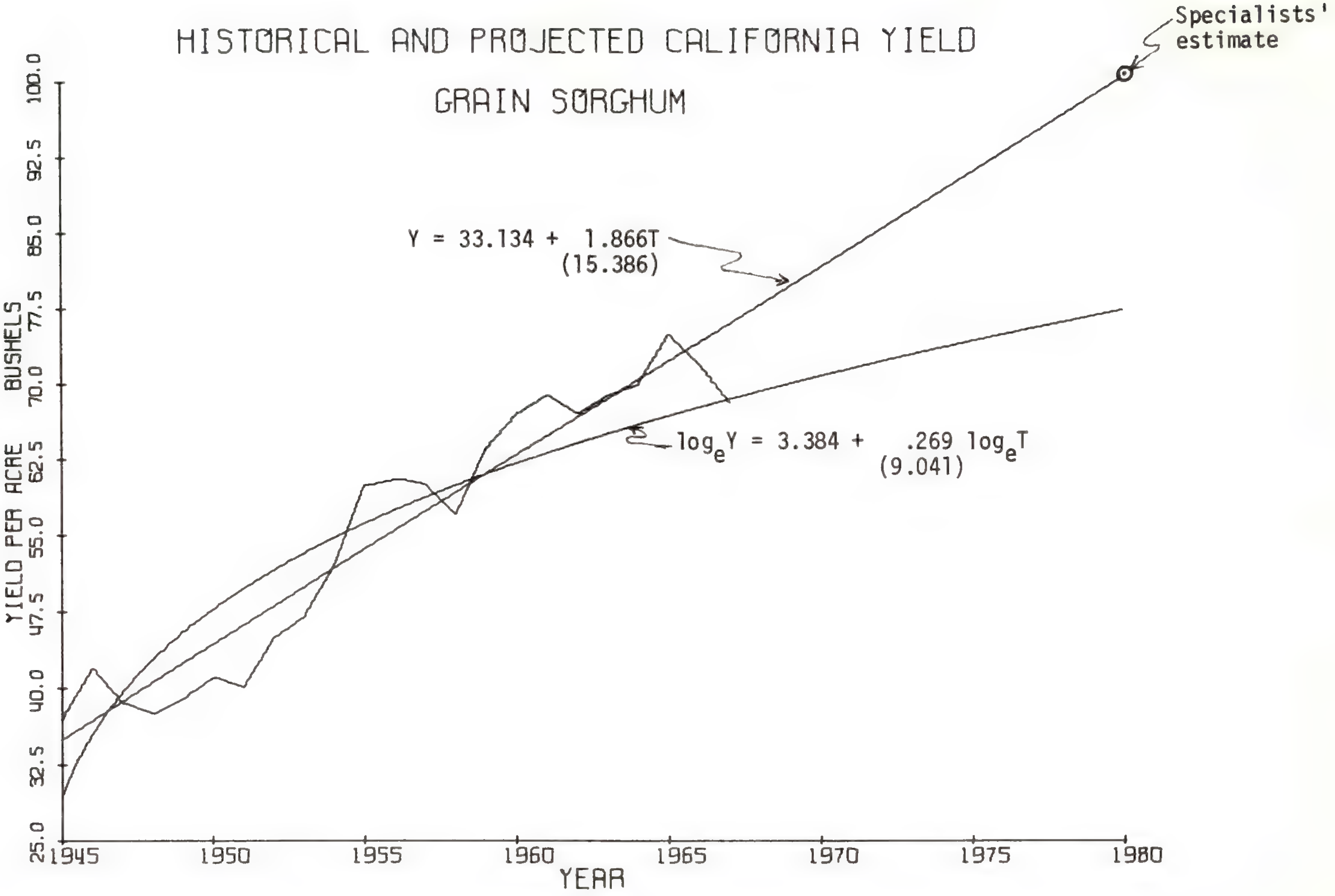
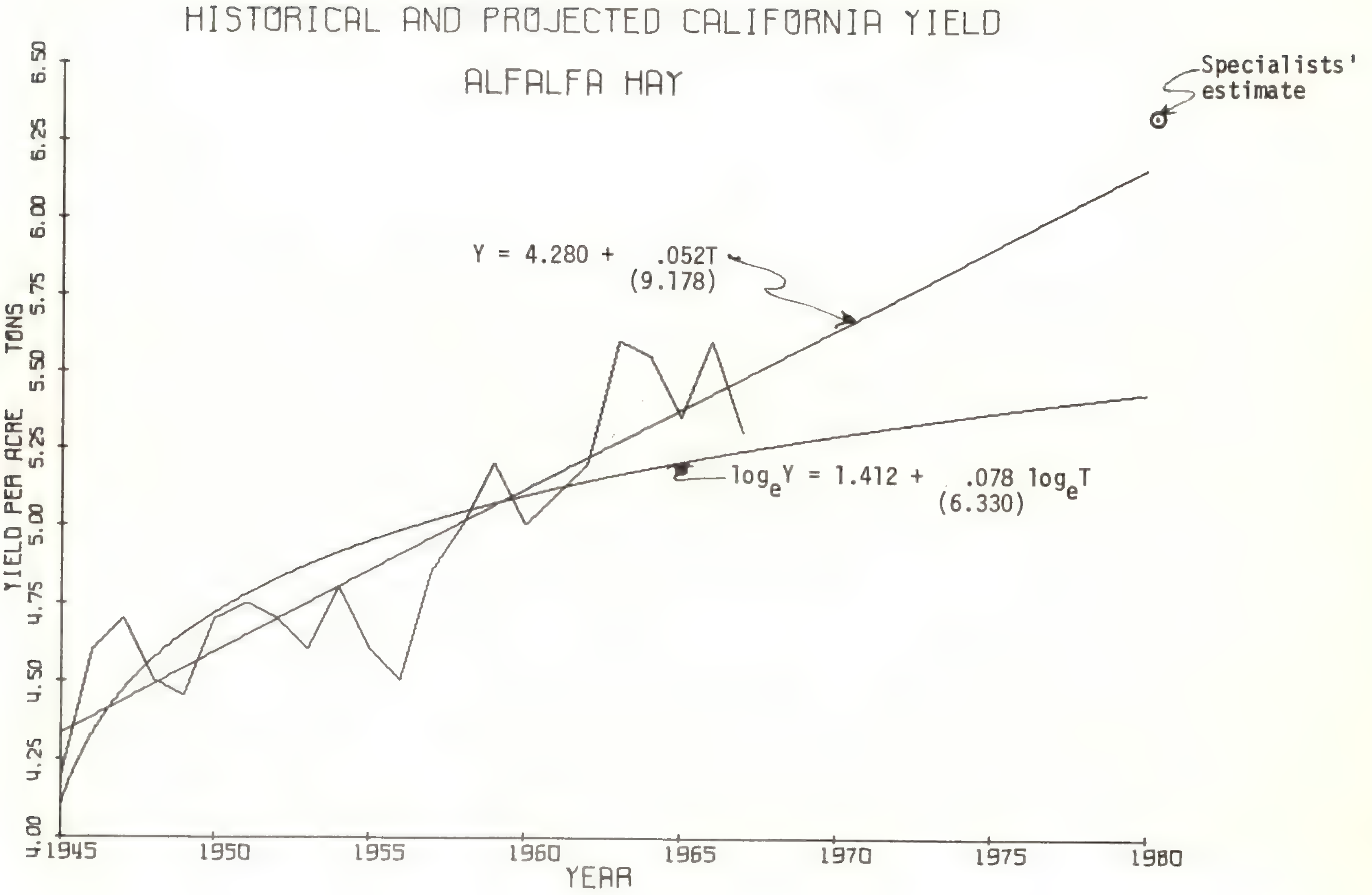

HISTORICAL AND PROJECTED CALIFORNIA YIELD
GRAIN SORGHUM
Specialists' estimate
Y = 33.134 + 1.866T
(15.386)
log_e Y = 3.384 + .269 log_e T
(9.041)
YIELD PER ACRE BUSHELS
25.0
32.5
40.0
47.5
55.0
62.5
70.0
77.5
85.0
92.5
100.0
YEAR
1945
1950
1955
1960
1965
1970
1975
1980

FIGURE 19



HISTORICAL AND PROJECTED CALIFORNIA YIELD

ALFALFA HAY

$Y = 4.280 + \underset{(9.178)}{.052}T$

$\log_e Y = 1.412 + \underset{(6.330)}{.078} \log_e T$

Specialists' estimate

FIGURE 20

HISTORICAL AND PROJECTED CALIFORNIA YIELD

DRY BEANS

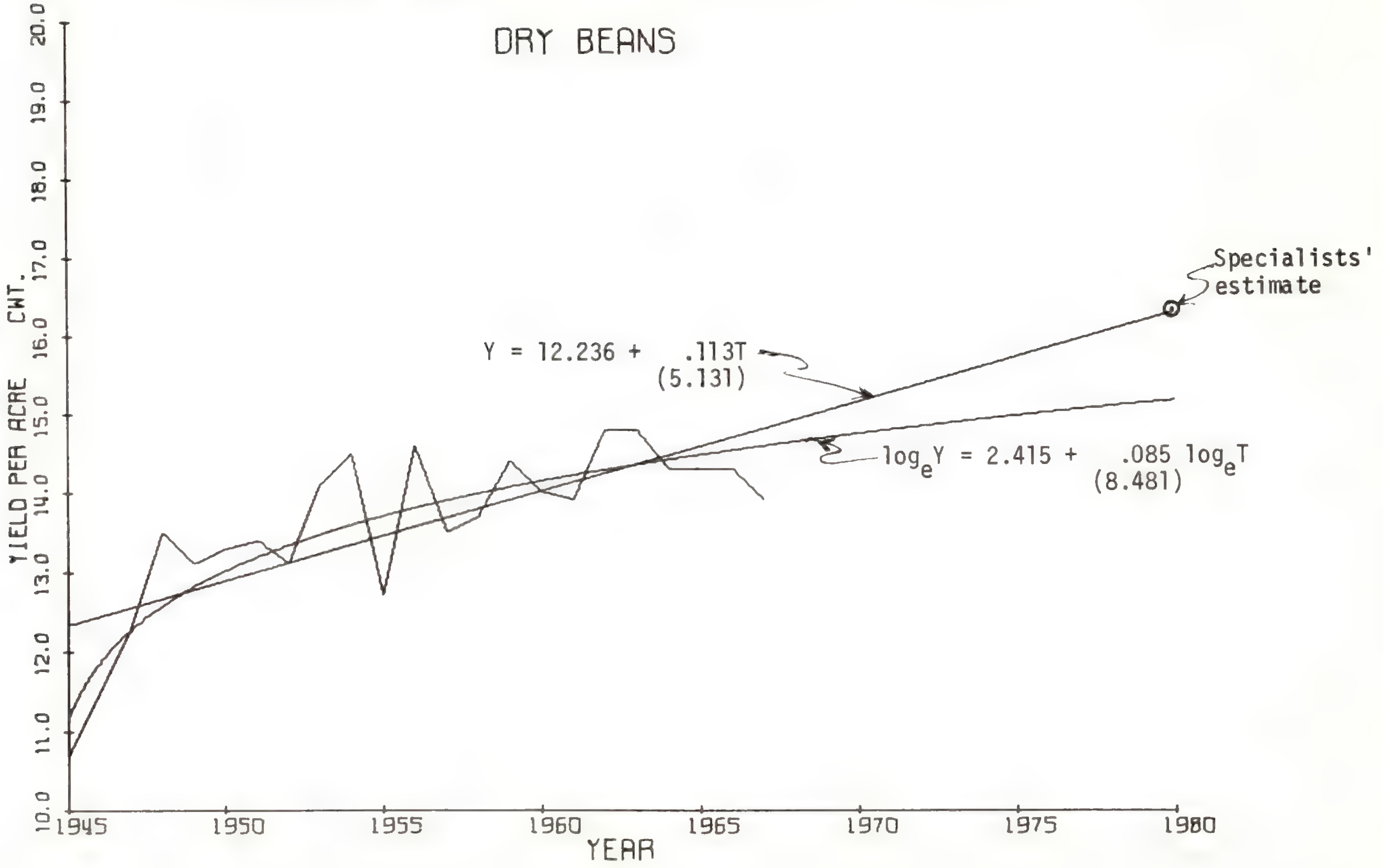
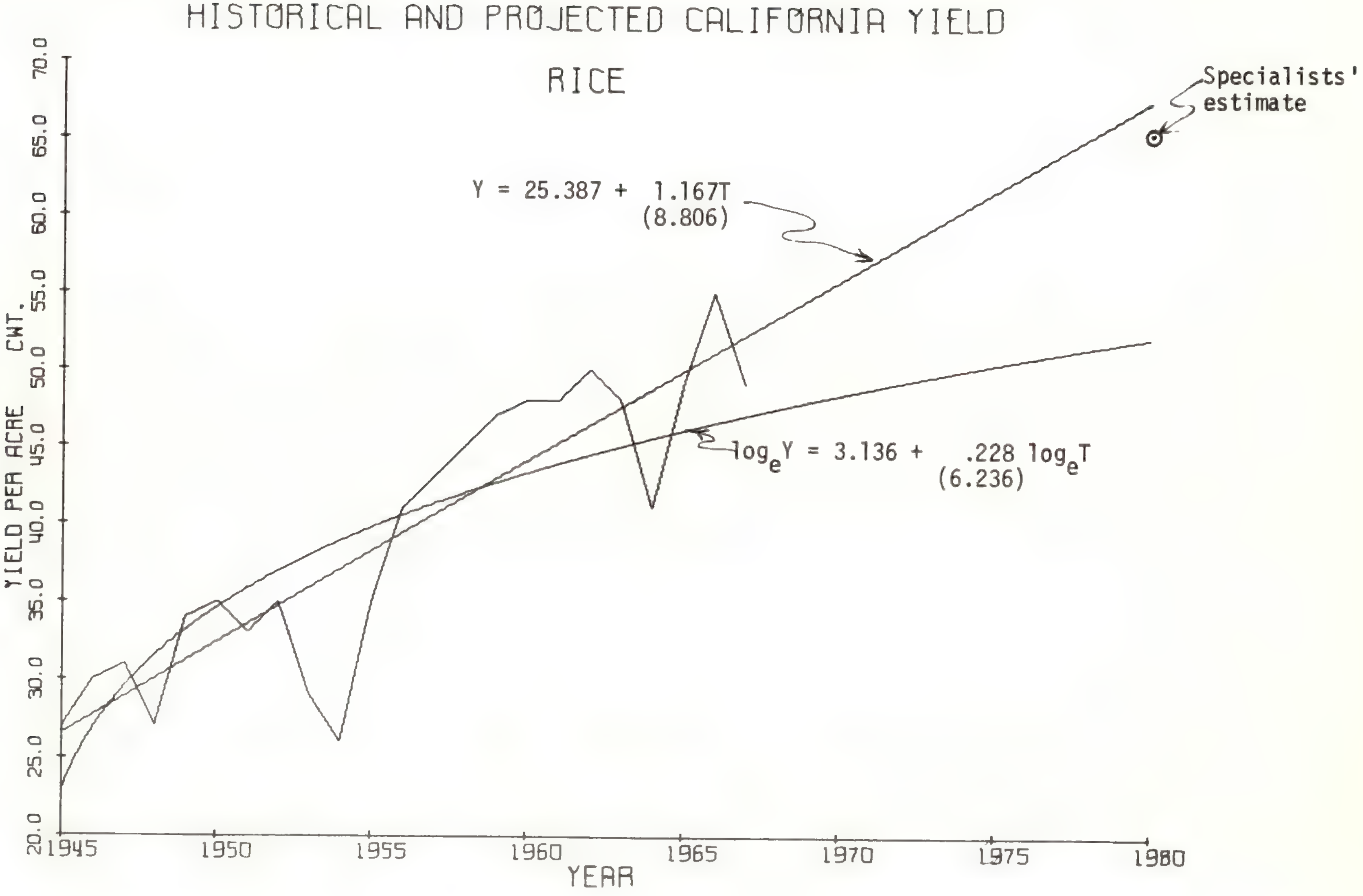


FIGURE 21



HISTORICAL AND PROJECTED CALIFORNIA YIELD

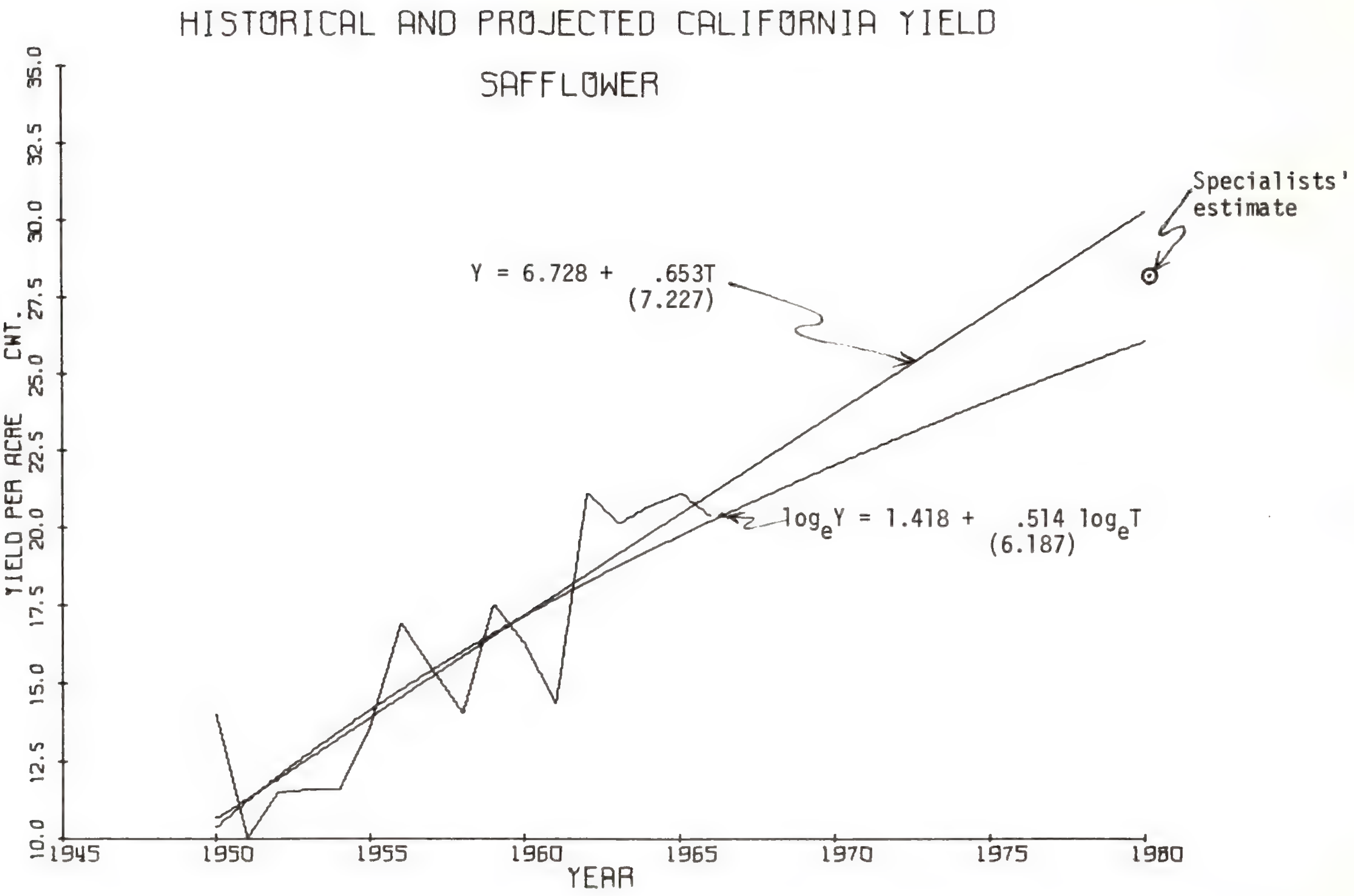
RICE

$Y = 25.387 + \underset{(8.806)}{1.167}T$

$\log_e Y = 3.136 + \underset{(6.236)}{.228} \log_e T$

Specialists' estimate

FIGURE 22



HISTORICAL AND PROJECTED CALIFORNIA YIELD

SAFFLOWER

FIGURE 23

HISTORICAL AND PROJECTED CALIFORNIA YIELD

SUGAR BEETS

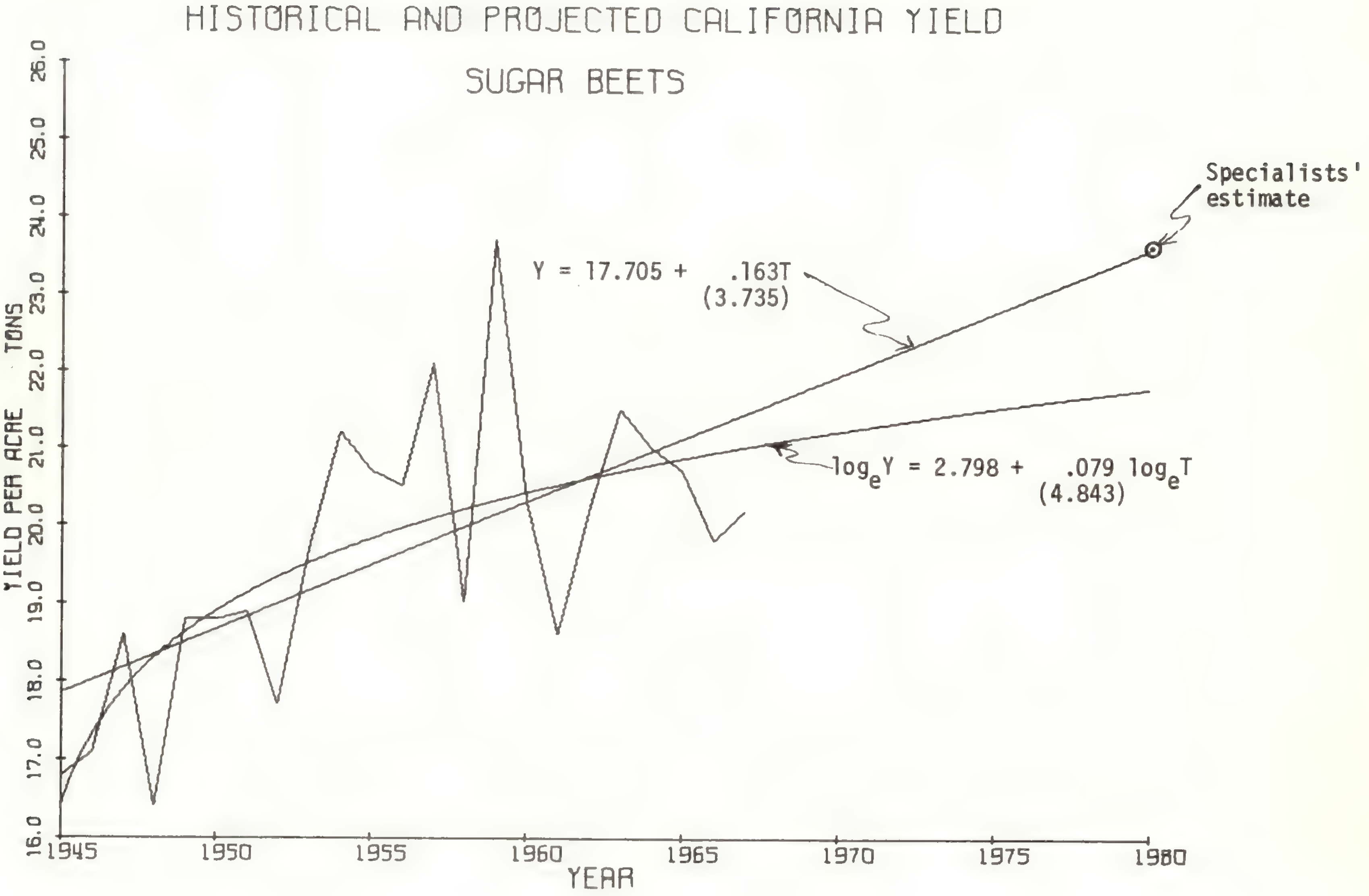
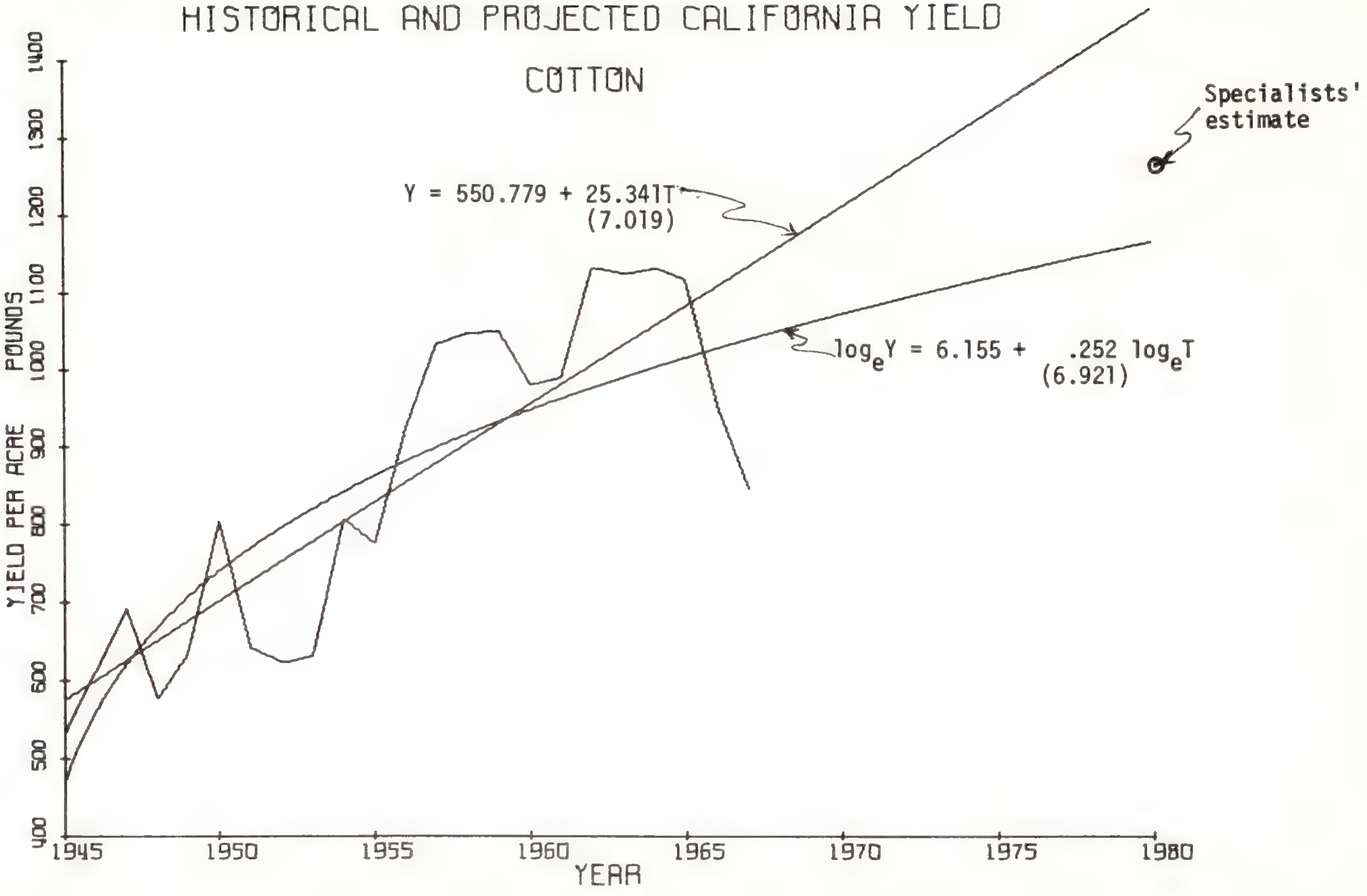


FIGURE 24



HISTORICAL AND PROJECTED CALIFORNIA YIELD

COTTON

TABLE 1

Base Period and Projected 1980 California Yield Per Harvested Acre

Commodity	1961-1965 weighted average[a]		1980 linear projection	1980 logarithmic projection	1980 projection[b] by specialists
	unit	yield	yield index (1961-1965=100)		
Vegetable crops:					
Asparagus	cwt.	29.8	107	91	111
Broccoli	cwt.	63.4	122	99	122
Lettuce	cwt.	197.2	129[d]	108[d]	129
Cantaloupes	cwt.	136.4	122[e]	109[e]	115
Potatoes	cwt.	299.8[f]	123	110	121
Tomatoes for processing	tons	18.7	141	121	160
Field crops:					
Corn for grain	bu.	80.4	164	126	160
Barley	bu.	50.4	135	105	135
Grain sorghum	bu.	70.4	142	109	142
Alfalfa hay	tons	5.36	115	101	118
Dry beans	cwt.	14.42	113	105	113
Rice	cwt.	48.0	140	108	135
Safflower	cwt.	19.8	152	131	141
Sugar beets	tons	20.5	115	106	115
Cotton	lbs.	1,097 [c]	133	106	115

[a] Source: California Crop and Livestock Reporting Service [4, 5].

[b] Values used for projecting yields in this study.

[c] Net cotton lint yield -- does not include bags and ties.

[d] Regression estimates from fall lettuce data.

[e] Regression estimates from summer cantaloupe data.

[f] All potatoes marketed -- not just USDA # 1's.

TABLE 2

Irrigation Water Requirements, Soil 01[a/]

Climate zone	Asparagus	Broccoli	Lettuce	Cantaloupes	Potatoes	Tomatoes	Corn	Barley
	acre feet/acre							
11	NA	1.00	1.00	NA	1.75	NA	1.50	NA
12	NA	1.25	1.25	NA	2.00	NA	1.75	NA
21	1.25	1.25	1.25	NA	2.00	2.75	1.75	1.00
22	1.50	1.50	2.00	NA	2.25	3.00	2.00	1.50
23	1.50	1.50	2.00	NA	2.25	3.00	2.00	1.50
24	1.50	1.50	1.50	NA	2.25	3.00	2.00	1.00
31	2.50	1.75	1.75	NA	2.50	3.25	2.25	1.50
32	2.50	1.75	1.75	NA	2.50	3.25	2.25	1.50
34	2.50	2.00	2.00	2.00	2.75	3.50	2.50	1.50
41	1.50	1.50	1.50	1.50	2.25	3.00	2.00	1.25
42	1.50	1.50	1.50	1.50	2.25	3.00	2.00	1.25
51	1.50	1.50	1.50	NA	2.25	3.00	2.00	1.00
61	1.50	1.80	1.80	1.75	2.40	3.15	2.00	1.25
62	2.00	2.00	2.00	2.00	2.75	3.50	2.50	1.50
63	2.00	2.00	2.00	2.00	2.75	3.50	2.50	1.50
71	NA	NA	3.00	3.00	3.50	NA	4.50	2.40
72	3.00	3.00	3.00	3.00	3.50	5.00	4.50	2.50
81	1.50	1.50	NA	1.50	2.25	3.00	2.00	1.25
91	NA	1.25	NA	NA	2.00	NA	1.70	1.00

Climate zone	Grain sorghum	Alfalfa hay	Dry beans	Rice	Safflower	Sugar beets	Cotton
	acre feet/acre						
11	1.50	2.25	1.50	NA	NA	NA	NA
12	1.75	2.50	1.75	NA	NA	NA	NA
21	1.75	2.50	1.75	NA	NA	2.00	NA
22	2.00	3.20	2.00	NA	NA	2.25	NA
23	2.00	3.00	2.00	NA	NA	2.25	NA
24	2.00	4.00	2.00	6.00	2.50	3.50	NA
31	2.25	4.50	2.20	NA	NA	2.75	NA
32	2.25	4.50	2.20	NA	NA	2.75	NA
34	2.50	5.00	2.50	NA	3.00	4.00	NA
41	2.00	4.00	1.80	6.00	2.50	3.50	NA
42	2.00	4.00	1.80	6.00	2.50	3.50	NA
51	2.00	4.00	2.00	6.00	2.50	3.50	NA
61	2.15	4.00	2.15	6.00	2.50	3.65	3.00
62	2.50	5.00	2.50	6.00	3.00	4.00	3.00
63	2.50	5.00	2.50	6.00	3.00	4.00	3.00
71	4.00	8.00	NA	NA	4.00	5.50	4.00
72	4.00	8.00	NA	10.00	4.00	5.50	4.00
81	2.00	3.30	1.80	NA	2.50	3.50	NA
91	1.70	3.20	NA	NA	NA	3.25	NA

[a/] Soil 12 for rice.

NA Data not obtained.

TABLE 3

Irrigation Water Requirements by Soil

Soil number	Relative irrigation requirements
	soil 01 = 100
01	100
02	100
03	100
05	120
11	100
12	80
13	80
14	100
15	100
21	85
22	68
23	85
24	85

TABLE 4

Typical HPA Water Cost, 1965

HPA	Cost per acre-foot dollars	HPA	Cost per acre-foot dollars	HPA	Cost per acre-foot dollars
0111	2.52	1151	0	2263	20.01
112	2.50	1191	4.02	2311	2.70
121	4.57	1221	2.61	2312	2.25
122	4.92	1223	4.48	2321	2.49
123	4.05	1231	10.00	2323	4.68
132	11.47	1232	10.00	2331	6.07
134	15.00	1241	2.31	2341	3.46
141	2.92	1251	3.28	2342	3.32
142	2.64	1261	2.38	2351	3.77
151	3.66	1262	9.93	2361	.41
161	1.49	1263	9.63	2381	2.25
162	2.53	1281	4.96	2391	NA
163	2.55	1291	1.95	2441	4.38
171	2.70	1341	1.90	2442	4.91
181	2.32	1351	2.34	2451	5.29
191	4.15	1361	1.91	2461	1.85
221	4.87	1362	12.91	2462	12.27
222	6.72	1381	NA	2463	5.18
223	5.66	1451	2.92	2471	NA
224	4.73	1461			
232	10.00	1462	6.73		
251	6.43	1551	.64		
261	2.44	1561	2.07		
262	9.95	1562	9.10		
263	6.07	1572	4.80		
281	6.45	2111	2.56		
362	14.70	2121	3.97		
363	19.36	2122	6.71		
371	4.89	2123	4.91		
372	4.09	2124	4.83		
381	11.36	2131	10.05		
391	2.92	2134	25.00		
521	4.05	2141	4.34		
522	5.20	2142	4.82		
561	1.82	2151	4.05		
562	2.48	2181	4.13		
563	2.41	2223	10.00		
572	4.32	2232	20.00		

NA Not applicable -- no irrigated activities specified in these HPAs.

TABLE 5

Standard Unit Cost Estimates, 1965

Cost item	Unit	Cost/unit
		dollars
Skilled labor	hour	2.00
Unskilled labor	hour	1.75
Fertilizer:		
Nitrogen	pound	.07
P_2O_5	pound	.11
Sprinkler irrigation:[a/]		
Investment	year	19.50
Cost of establishing pressure	acre-foot of water	3.00
		percent
Interest on investment	1/2 of total investment	6.0
Management and overhead	sum of all other costs	10.0

[a/] On soils 21 - 24 only.

TABLE 6

Standard Harvest Cost Estimates
Per Unit Crop Output, 1965

Representative commodity	Harvest costs
	dollars/ton
Vegetable crops:	
Asparagus	142.15
Broccoli	25.00
Lettuce	46.00
Cantaloupes	50.15
Potatoes	22.80
Tomatoes for processing	7.84
Field crops:	
Corn	3.75
Barley	2.00
Grain sorghum	2.40
Alfalfa hay	6.90
Dry beans	23.25
Rice	5.40
Safflower	2.50
Sugar beets	2.50
	dollars/bale
Cotton	40.41

TABLE 7

Annual Investment Cost of Reclaiming Saline-Alkaline Soils

HPA	Barley, nonirrigated	Rice	Other crops[a]
	dollars/acre		
1341	0	4.00	20.00
1351	0	2.00	15.00
1361	0	2.00	14.00
1362	0	13.00	18.00
1381	0	b/	b/
1551	0	2.00	8.00
1561	0	2.00	8.00
1562	0	2.00	7.00
1572	0	5.00	15.00

a/ Cut in half for each crop in double cropping activity.

b/ Inadequate water supply for extensive permanent reclamation.

TABLE 8

Barley and Grain Sorghum Double Crop Activity

Double crop climates	Proportion of years each crop can be:		
	Grown (a)	Grown with other crop (a_1)	Grown as a single crop (a_2)
22	.80	.60	.20
23	.80	.60	.20
24	.85	.70	.15
31	.80	.60	.20
32	.80	.60	.20
33	.80	.60	.20
34	1.00	1.00	0
41	.80	.60	.20
42	.80	.60	.20
51	.85	.70	.15
61	.85	.70	.15
62	.90	.80	.10
63	.90	.80	.10
72	1.00	1.00	0

TABLE 9

County Agricultural Extension Service Sample Cost Sheets Used for Development of Base Area Budgets

Crop	County	Year	HPA assumed applicable for
Vegetable crops:			
Asparagus	Solano	1966	0151
Broccoli	Santa Barbara	1968	0222
Lettuce	Santa Barbara	1968	0222
Cantaloupes	Kings	1968	0262
Potatoes	Tulare	1964	0262
Tomatoes for processing	San Joaquin	1965	0151
Field crops:			
Corn for grain	Tulare	1967	0262
Barley	Tulare	1967	0262
Grain sorghum	Tulare	1967	0262
Alfalfa hay	Tulare	1967	0262
Dry beans	Tulare	1967	0262
Rice	Sutter	1966	1241
Safflower	Tulare	1967	0262
Sugar beets	Tulare	1967	0262
Cotton	Tulare	1967	0262

TABLE 10

Estimated Base Period and 1980 Annual Crop Yield and Nonland Costs Per Acre for Single Crop Activities

HPA[a/]	Crop activity code [b/]	Estimated cost		Estimated yield[c/]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
0121	AS	424.00	552.00	1.55	1.71
0122	AS	530.00	697.00	2.22	2.45
0123	AS	529.00	696.00	2.22	2.45
0132	AS	451.00	586.00	1.55	1.71
0134	AS	463.00	601.00	1.55	1.71
0141	AS	423.00	552.00	1.55	1.71
0142	AS	422.00	551.00	1.55	1.71
0151	AS	465.00	609.00	1.81	2.00
0161	AS	385.00	500.00	1.32	1.46
0162	AS	356.00	460.00	1.10	1.22
0163	AS	356.00	460.00	1.10	1.22
0181	AS	386.00	502.00	1.32	1.46
0221	AS	424.00	553.00	1.55	1.71
0222	AS	533.00	701.00	2.22	2.45
0223	AS	532.00	699.00	2.22	2.45
0224	AS	460.00	602.00	1.77	1.96
0232	AS	450.00	584.00	1.55	1.71
0251	AS	463.00	605.00	1.77	1.96
0261	AS	386.00	502.00	1.32	1.46
0262	AS	372.00	480.00	1.10	1.22
0263	AS	364.00	470.00	1.10	1.22
0281	AS	393.00	510.00	1.32	1.46
0362	AS	382.00	493.00	1.10	1.22
0363	AS	393.00	506.00	1.10	1.22
0372	AS	385.00	496.00	1.12	1.24
0381	AS	401.00	520.00	1.32	1.46
0521	AS	363.00	470.00	1.15	1.28
0522	AS	446.00	582.00	1.65	1.83
0561	AS	335.00	432.00	0.99	1.09
0562	AS	314.00	403.00	0.82	0.91
0563	AS	314.00	403.00	0.82	0.91
0572	AS	406.00	524.00	1.22	1.35
1151	AS	379.00	494.00	1.34	1.48
1221	AS	441.00	574.00	1.55	1.71
1223	AS	549.00	720.00	2.22	2.45
1232	AS	464.00	602.00	1.55	1.71
1241	AS	442.00	575.00	1.55	1.71
1251	AS	484.00	632.00	1.81	2.00
1261	AS	406.00	527.00	1.32	1.46
1262	AS	388.00	500.00	1.10	1.22
1263	AS	388.00	499.00	1.10	1.22
1281	AS	410.00	531.00	1.32	1.46
1341	AS	464.00	602.00	1.55	1.71
1351	AS	499.00	651.00	1.81	2.00
1361	AS	421.00	545.00	1.32	1.46
1362	AS	413.00	531.00	1.10	1.22

Footnotes at end of table.

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Table 10 (continued)

HPA[a]	Crop activity code [b]	Estimated cost		Estimated yield[c]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
1451	AS	364.00	472.00	1.18	1.30
1461	AS	334.00	431.00	0.99	1.09
1462	AS	321.00	412.00	0.82	0.91
1551	AS	370.00	478.00	1.18	1.30
1561	AS	342.00	441.00	0.99	1.09
1562	AS	334.00	428.00	0.82	0.91
1572	AS	357.00	456.00	0.82	0.91
2121	AS	378.00	489.00	1.15	1.28
2122	AS	463.00	603.00	1.65	1.83
2123	AS	460.00	600.00	1.65	1.83
2124	AS	408.00	529.00	1.32	1.46
2134	AS	440.00	564.00	1.15	1.28
2141	AS	381.00	493.00	1.15	1.28
2142	AS	382.00	494.00	1.15	1.28
2151	AS	407.00	528.00	1.32	1.46
2181	AS	355.00	457.00	0.99	1.09
2223	AS	477.00	619.00	1.60	1.77
2232	AS	438.00	562.00	1.15	1.28
2263	AS	376.00	479.00	0.82	0.91
0111	BR	369.00	471.00	2.34	2.86
0112	BR	370.00	472.00	2.24	2.74
0134	BR	413.00	526.00	2.41	2.94
0141	BR	369.00	470.00	2.06	2.52
0142	BR	374.00	476.00	2.24	2.73
0151	BR	380.00	486.00	2.41	2.94
0161	BR	400.00	515.00	3.10	3.78
0162	BR	395.00	507.00	2.75	3.36
0163	BR	400.00	514.00	2.92	3.57
0181	BR	359.00	454.00	1.72	2.10
0191	BR	358.00	453.00	1.72	2.10
0224	BR	378.00	482.00	2.26	2.76
0251	BR	381.00	485.00	2.26	2.76
0261	BR	396.00	509.00	2.91	3.55
0262	BR	407.00	520.00	2.58	3.15
0263	BR	403.00	516.00	2.74	3.35
0281	BR	363.00	458.00	1.62	1.97
0362	BR	413.00	526.00	2.41	2.94
0363	BR	427.00	544.00	2.56	3.13
0372	BR	401.00	510.00	2.21	2.70
0381	BR	368.00	464.00	1.50	1.84
0391	BR	350.00	442.00	1.50	1.84
0561	BR	390.00	498.00	2.52	3.08
0562	BR	387.00	493.00	2.24	2.73
0563	BR	391.00	498.00	2.37	2.90
0572	BR	410.00	520.00	2.12	2.59
1191	BR	356.00	451.00	1.68	2.05

Footnotes at end of table.

--Continued.

Table 10 (continued)

HPA[a]	Crop activity code [b]	Estimated cost		Estimated yield[c]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
1241	BR	352.00	445.00	1.63	1.98
1251	BR	361.00	458.00	1.90	2.32
1261	BR	378.00	483.00	2.44	2.98
1262	BR	386.00	491.00	2.17	2.65
1263	BR	389.00	496.00	2.30	2.81
1281	BR	348.00	438.00	1.36	1.66
1291	BR	341.00	430.00	1.36	1.66
1341	BR	373.00	471.00	1.63	1.98
1351	BR	376.00	477.00	1.90	2.32
1361	BR	393.00	501.00	2.44	2.98
1362	BR	411.00	522.00	2.17	2.65
1451	BR	366.00	466.00	1.96	2.39
1461	BR	385.00	492.00	2.52	3.08
1462	BR	390.00	497.00	2.24	2.73
1551	BR	372.00	472.00	1.96	2.39
1561	BR	394.00	503.00	2.52	3.08
1562	BR	403.00	513.00	2.24	2.73
1572	BR	407.00	514.00	1.76	2.15
2111	BR	373.00	473.00	1.90	2.32
2124	BR	386.00	489.00	1.96	2.39
2134	BR	432.00	546.00	1.96	2.39
2141	BR	377.00	476.00	1.68	2.05
2142	BR	382.00	483.00	1.81	2.22
2151	BR	385.00	488.00	1.96	2.39
2181	BR	369.00	465.00	1.40	1.71
2263	BR	424.00	541.00	2.49	3.03
2311	BR	369.00	467.00	1.75	2.14
2312	BR	374.00	473.00	1.81	2.20
2341	BR	372.00	470.00	1.55	1.89
2342	BR	376.00	475.00	1.68	2.05
2351	BR	380.00	481.00	1.81	2.20
2361	BR	393.00	501.00	2.32	2.83
2381	BR	364.00	457.00	1.29	1.57
2441	BR	372.00	468.00	1.48	1.81
2442	BR	376.00	475.00	1.61	1.96
2451	BR	380.00	480.00	1.73	2.11
2461	BR	393.00	500.00	2.23	2.72
2462	BR	409.00	518.00	1.98	2.41
2463	BR	399.00	506.00	2.10	2.56
0141	LE	602.00	874.00	7.38	9.54
0142	LE	601.00	874.00	7.38	9.54
0151	LE	680.00	999.00	8.91	11.52
0171	LE	576.00	826.00	6.42	8.29
0224	LE	682.00	1002.00	8.91	11.52
0251	LE	685.00	1005.00	8.91	11.52
0371	LE	569.00	812.00	6.13	7.92

Footnotes at end of table.

--Continued.

Table 10 (continued)

HPA[a]	Crop activity code [b]	Estimated cost		Estimated yield[c]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
1241	LE	591.00	857.00	7.13	9.22
1251	LE	668.00	978.00	8.61	11.14
1341	LE	612.00	883.00	7.13	9.22
1351	LE	683.00	997.00	8.61	11.14
1451	LE	633.00	922.00	7.87	10.18
1551	LE	638.00	928.00	7.87	10.18
2124	LE	661.00	961.00	8.12	10.50
2141	LE	588.00	844.00	6.68	8.64
2142	LE	588.00	845.00	6.68	8.64
2151	LE	660.00	960.00	8.12	10.50
2341	LE	546.00	779.00	5.89	7.62
2342	LE	546.00	779.00	5.89	7.62
2351	LE	609.00	879.00	7.13	9.22
2441	LE	525.00	745.00	5.44	7.04
2442	LE	526.00	746.00	5.44	7.04
2451	LE	586.00	842.00	6.63	8.58
0111	LS	625.00	914.00	7.96	10.29
0112	LS	585.00	850.00	7.12	9.20
0122	LS	746.00	1100.00	10.03	12.97
0123	LS	782.00	1158.00	10.78	13.94
0221	LS	717.00	1058.00	9.65	12.48
0222	LS	772.00	1140.00	10.46	13.53
0223	LS	766.00	1132.00	10.40	13.45
0522	LS	756.00	1111.00	9.96	12.88
1223	LS	766.00	1132.00	10.42	13.48
2111	LS	637.00	926.00	7.82	10.11
2122	LS	740.00	1083.00	9.47	12.25
2123	LS	753.00	1105.00	9.80	12.67
2223	LS	755.00	1106.00	9.70	12.54
2311	LS	588.00	849.00	6.86	8.87
2312	LS	541.00	772.00	5.87	7.59
0372	CF	513.00	694.00	6.22	7.15
0572	CF	338.00	447.00	3.05	3.51
1572	CF	465.00	624.00	5.02	5.78
0134	CA	531.00	718.00	6.32	7.28
0141	CA	510.00	694.00	6.51	7.49
0142	CA	510.00	693.00	6.51	7.49
0161	CA	489.00	664.00	6.14	7.06
0162	CA	514.00	699.00	6.51	7.49
0163	CA	514.00	699.00	6.51	7.49
0171	CA	405.00	542.00	4.35	5.01
0181	CA	458.00	620.00	5.58	6.42
0261	CA	539.00	735.00	7.01	8.07
0262	CA	582.00	792.00	7.44	8.56
0263	CA	573.00	781.00	7.44	8.56
0281	CA	511.00	694.00	6.42	7.38

Footnotes at end of table. --Continued.

Table 10 (continued)

HPA[a/]	Crop activity code [b/]	Estimated cost		Estimated yield[c/]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
0362	CA	648.00	883.00	8.44	9.72
0363	CA	654.00	890.00	8.37	9.63
0371	CA	480.00	647.00	5.58	6.42
0381	CA	560.00	762.00	7.16	8.24
0561	CA	389.00	523.00	4.38	5.04
0562	CA	408.00	550.00	4.65	5.35
0563	CA	408.00	549.00	4.65	5.35
1241	CA	455.00	617.00	5.58	6.42
1261	CA	440.00	594.00	5.26	6.06
1262	CA	472.00	638.00	5.58	6.42
1263	CA	472.00	637.00	5.58	6.42
1281	CA	412.00	556.00	4.74	5.46
1341	CA	476.00	643.00	5.58	6.42
1361	CA	454.00	612.00	5.26	6.06
1362	CA	497.00	668.00	5.58	6.42
1461	CA	423.00	570.00	4.91	5.65
1462	CA	452.00	608.00	5.21	5.99
1561	CA	431.00	581.00	4.91	5.65
1562	CA	464.00	624.00	5.21	5.99
2134	CA	518.00	692.00	5.42	6.24
2141	CA	482.00	649.00	5.58	6.42
2142	CA	482.00	650.00	5.58	6.42
2181	CA	435.00	584.00	4.74	5.46
2263	CA	506.00	680.00	5.58	6.42
2341	CA	358.00	475.00	3.37	3.87
2342	CA	358.00	475.00	3.37	3.87
2361	CA	346.00	458.00	3.18	3.66
2381	CA	331.00	436.00	2.90	3.34
0111	PO	522.00	703.00	9.29	11.25
0112	PO	529.00	712.00	9.42	11.42
0121	PO	539.00	726.00	9.64	11.68
0122	PO	615.00	838.00	12.48	15.12
0123	PO	560.00	757.00	10.40	12.60
0132	PO	601.00	812.00	11.06	13.39
0134	PO	627.00	846.00	11.44	13.86
0141	PO	577.00	783.00	11.18	13.54
0142	PO	505.00	675.00	8.32	10.08
0151	PO	599.00	814.00	11.96	14.49
0161	PO	595.00	810.00	11.96	14.49
0162	PO	602.00	819.00	11.96	14.49
0163	PO	550.00	741.00	9.88	11.97
0171	PO	548.00	735.00	9.36	11.34
0181	PO	569.00	772.00	10.92	13.23
0191	PO	531.00	714.00	9.36	11.34
0221	PO	588.00	799.00	11.58	14.02
0222	PO	619.00	843.00	12.48	15.12

Footnotes at end of table.

--Continued.

Table 10 (continued)

HPA[a]	Crop activity code [b]	Estimated cost		Estimated yield[c]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
0223	PO	561.00	756.00	10.24	12.41
0224	PO	601.00	818.00	11.96	14.49
0232	PO	607.00	821.00	11.44	13.86
0251	PO	606.00	823.00	11.96	14.49
0261	PO	598.00	813.00	11.96	14.49
0262	PO	625.00	847.00	11.96	14.49
0263	PO	561.00	754.00	9.88	11.97
0281	PO	580.00	784.00	10.92	13.23
0362	PO	639.00	864.00	11.96	14.49
0363	PO	601.00	804.00	9.88	11.97
0371	PO	556.00	745.00	9.36	11.34
0372	PO	524.00	699.00	8.22	9.95
0381	PO	592.00	799.00	10.92	13.23
0391	PO	528.00	711.00	9.36	11.34
0521	PO	525.00	705.00	9.05	10.96
0522	PO	577.00	780.00	10.82	13.10
0561	PO	559.00	755.00	10.40	12.60
0562	PO	566.00	765.00	10.40	12.60
0563	PO	521.00	697.00	8.60	10.42
0572	PO	532.00	708.00	8.22	9.95
1151	PO	633.00	863.00	13.00	15.75
1191	PO	550.00	742.00	10.12	12.26
1451	PO	531.00	714.00	9.33	11.30
1461	PO	531.00	714.00	9.33	11.30
1462	PO	549.00	736.00	9.33	11.30
1551	PO	534.00	718.00	9.33	11.30
1561	PO	539.00	724.00	9.33	11.30
1562	PO	564.00	755.00	9.33	11.30
1572	PO	498.00	654.00	6.40	7.75
2111	PO	507.00	674.00	7.84	9.50
2121	PO	520.00	692.00	8.11	9.83
2122	PO	570.00	764.00	9.73	11.79
2123	PO	525.00	699.00	8.11	9.83
2124	PO	556.00	744.00	9.33	11.30
2131	PO	532.00	704.00	7.71	9.34
2134	PO	606.00	803.00	8.92	10.81
2141	PO	539.00	720.00	8.72	10.56
2142	PO	450.00	586.00	5.10	6.17
2151	PO	554.00	742.00	9.33	11.30
2181	PO	534.00	713.00	8.53	10.33
0121	TO	440.00	665.00	19.34	31.02
0122	TO	450.00	682.00	20.02	32.12
0123	TO	462.00	707.00	21.74	34.88
0132	TO	443.00	648.00	16.15	25.91
0134	TO	432.00	612.00	12.74	20.44
0141	TO	455.00	696.00	21.36	34.27

Footnotes at end of table.

--Continued.

Table 10 (continued)

HPA[a]	Crop activity code [b]	Estimated cost		Estimated yield[c]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
0142	TO	454.00	695.00	21.36	34.27
0151	TO	452.00	690.00	20.81	33.39
0161	TO	432.00	654.00	19.11	30.66
0162	TO	399.00	584.00	14.56	23.36
0163	TO	399.00	584.00	14.56	23.36
0181	TO	378.00	547.00	12.74	20.44
0221	TO	431.00	647.00	18.20	29.20
0222	TO	456.00	689.00	20.02	32.12
0223	TO	465.00	709.00	21.47	34.44
0224	TO	458.00	697.00	20.98	33.67
0232	TO	465.00	697.00	19.39	31.11
0251	TO	463.00	704.00	20.98	33.67
0261	TO	435.00	658.00	19.11	30.66
0262	TO	428.00	620.00	14.56	23.36
0263	TO	413.00	601.00	14.56	23.36
0281	TO	392.00	564.00	12.74	20.44
0362	TO	446.00	642.00	14.56	23.36
0363	TO	464.00	664.00	14.56	23.36
0372	TO	389.00	549.00	10.92	17.52
0381	TO	408.00	584.00	12.74	20.44
0521	TO	369.00	522.00	10.61	17.02
0522	TO	386.00	549.00	11.68	18.73
0561	TO	369.00	525.00	11.14	17.87
0562	TO	353.00	488.00	8.49	13.62
0563	TO	352.00	488.00	8.49	13.62
0572	TO	362.00	486.00	6.37	10.22
1151	TO	368.00	567.00	17.95	28.79
1221	TO	407.00	607.00	16.69	26.78
1223	TO	449.00	686.00	20.87	33.48
1231	TO	395.00	566.00	12.52	20.09
1232	TO	446.00	666.00	18.39	29.51
1241	TO	422.00	637.00	18.39	29.51
1251	TO	431.00	653.00	19.11	30.66
1261	TO	416.00	624.00	17.53	28.12
1262	TO	406.00	584.00	13.35	21.42
1263	TO	405.00	583.00	13.35	21.42
1281	TO	371.00	532.00	11.68	18.75
1341	TO	443.00	663.00	18.39	29.51
1351	TO	445.00	670.00	19.11	30.66
1361	TO	430.00	641.00	17.53	28.12
1362	TO	434.00	620.00	13.35	21.42
1451	TO	430.00	647.00	18.47	29.64
1461	TO	408.00	606.00	16.17	25.94
1462	TO	396.00	566.00	12.32	19.77
1551	TO	431.00	649.00	18.47	29.64
1561	TO	417.00	617.00	16.17	25.94

Footnotes at end of table.

--Continued.

Table 10 (continued)

HPA a/	Crop activity code b/	Estimated cost		Estimated yield c/	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
1562	TO	413.00	587.00	12.32	19.77
1572	TO	400.00	554.00	9.78	15.69
2121	TO	404.00	580.00	12.89	20.67
2122	TO	426.00	615.00	14.18	22.75
2123	TO	437.00	641.00	16.11	25.84
2124	TO	430.00	626.00	15.24	24.45
2131	TO	401.00	555.00	9.67	15.52
2134	TO	448.00	610.00	9.03	14.48
2141	TO	422.00	612.00	14.50	23.26
2142	TO	430.00	626.00	15.22	24.41
2151	TO	428.00	624.00	15.24	24.45
2181	TO	374.00	518.00	9.03	14.48
2223	TO	465.00	693.00	18.85	30.24
2232	TO	461.00	664.00	15.16	24.32
2263	TO	440.00	619.00	12.13	19.46
2321	TO	368.00	511.00	9.10	14.60
2323	TO	396.00	560.00	11.37	18.25
2331	TO	364.00	491.00	6.82	10.95
2341	TO	389.00	548.00	10.92	17.52
2342	TO	388.00	548.00	10.92	17.52
2351	TO	403.00	576.00	12.49	20.03
2361	TO	370.00	516.00	9.55	15.33
2381	TO	346.00	466.00	6.37	10.22
0111	CN	97.00	124.00	1.65	2.65
0112	CN	101.00	131.00	2.09	3.36
0121	CN	106.00	137.00	2.24	3.60
0122	CN	108.00	139.00	1.87	3.00
0123	CN	106.00	137.00	1.87	3.00
0132	CN	128.00	163.00	1.85	2.96
0134	CN	143.00	182.00	1.94	3.12
0141	CN	107.00	139.00	2.58	4.13
0142	CN	104.00	135.00	2.09	3.34
0151	CN	109.00	142.00	2.69	4.31
0161	CN	103.00	134.00	2.42	3.88
0162	CN	111.00	144.00	2.44	3.91
0163	CN	109.00	140.00	2.02	3.24
0171	CN	130.00	166.00	1.90	3.05
0181	CN	103.00	132.00	1.91	3.06
0191	CN	102.00	131.00	1.68	2.69
0221	CN	106.00	137.00	2.09	3.36
0222	CN	112.00	143.00	1.75	2.81
0223	CN	110.00	140.00	1.80	2.88
0224	CN	111.00	145.00	2.62	4.20
0232	CN	124.00	157.00	1.72	2.76
0251	CN	115.00	149.00	2.62	4.20
0261	CN	105.00	136.00	2.35	3.76

Footnotes at end of table. --Continued.

Table 10 (continued)

HPA a/	Crop activity code b/	Estimated cost		Estimated yield c/	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
0262	CN	130.00	167.00	2.24	3.60
0263	CN	118.00	151.00	1.87	2.99
0281	CN	111.00	142.00	1.79	2.86
0362	CN	143.00	182.00	2.14	3.43
0363	CN	154.00	195.00	1.72	2.76
0371	CN	140.00	177.00	1.65	2.64
0372	CN	137.00	175.00	1.92	3.07
0381	CN	122.00	155.00	1.65	2.65
0391	CN	99.00	126.00	1.45	2.33
0521	CN	106.00	135.00	1.50	2.40
0522	CN	112.00	141.00	1.25	2.00
0561	CN	105.00	134.00	1.73	2.78
0562	CN	113.00	144.00	1.67	2.68
0563	CN	111.00	141.00	1.33	2.13
0572	CN	148.00	186.00	1.48	2.37
1151	CN	100.00	131.00	2.65	4.24
1191	CN	102.00	131.00	1.68	2.69
1221	CN	97.00	126.00	1.94	3.12
1223	CN	101.00	130.00	1.62	2.59
1231	CN	115.00	146.00	1.60	2.57
1232	CN	115.00	146.00	1.60	2.57
1241	CN	100.00	130.00	2.24	3.58
1251	CN	102.00	132.00	2.28	3.65
1261	CN	100.00	129.00	2.14	3.43
1262	CN	120.00	154.00	2.09	3.36
1263	CN	118.00	151.00	1.72	2.76
1281	CN	102.00	131.00	1.65	2.65
1291	CN	94.00	120.00	1.45	2.33
1341	CN	121.00	156.00	2.24	3.58
1351	CN	117.00	151.00	2.28	3.65
1361	CN	114.00	147.00	2.14	3.43
1362	CN	147.00	187.00	2.09	3.36
1451	CN	104.00	134.00	1.87	3.00
1461	CN	101.00	129.00	1.61	2.58
1462	CN	119.00	151.00	1.65	2.64
1551	CN	108.00	138.00	1.87	3.00
1561	CN	110.00	140.00	1.61	2.58
1562	CN	133.00	169.00	1.65	2.64
1572	CN	155.00	196.00	1.48	2.37
2111	CN	117.00	149.00	1.55	2.48
2121	CN	122.00	156.00	1.63	2.61
2122	CN	130.00	164.00	1.36	2.17
2123	CN	126.00	160.00	1.36	2.17
2124	CN	129.00	165.00	2.06	3.30
2131	CN	140.00	177.00	1.34	2.14
2134	CN	180.00	226.00	1.41	2.26

Footnotes at end of table.

--Continued.

Table 10 (continued)

HPA[a]	Crop activity code [b]	Estimated cost		Estimated yield[c]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
2141	CN	128.00	163.00	1.94	3.12
2142	CN	127.00	161.00	1.58	2.54
2151	CN	128.00	163.00	2.06	3.30
2181	CN	125.00	158.00	1.37	2.20
2223	CN	129.00	164.00	1.54	2.47
2232	CN	149.00	188.00	1.41	2.26
2263	CN	156.00	196.00	1.61	2.58
2311	CN	116.00	147.00	1.32	2.11
2312	CN	119.00	151.00	1.50	2.40
2321	CN	120.00	152.00	1.50	2.40
2323	CN	126.00	158.00	1.25	2.00
2331	CN	132.00	166.00	1.23	1.97
2341	CN	125.00	160.00	1.75	2.81
2342	CN	124.00	157.00	1.45	2.33
2351	CN	126.00	161.00	1.87	3.00
2361	CN	120.00	152.00	1.75	2.81
2381	CN	121.00	153.00	1.28	2.04
2441	CN	126.00	159.00	1.40	2.24
2442	CN	126.00	158.00	1.16	1.86
2451	CN	128.00	162.00	1.52	2.44
2461	CN	121.00	154.00	1.50	2.40
2462	CN	150.00	189.00	1.34	2.14
2463	CN	133.00	168.00	1.21	1.95
0122	BF	21.33	26.61	0.40	0.54
0123	BF	21.35	26.65	0.40	0.55
0132	BF	21.43	26.78	0.44	0.59
0141	BF	21.82	27.42	0.62	0.83
0142	BF	21.54	26.97	0.49	0.67
0151	BF	21.80	27.39	0.61	0.82
0161	BF	21.49	26.87	0.47	0.63
0181	BF	21.33	26.61	0.40	0.54
0191	BF	21.27	26.52	0.37	0.50
0222	BF	21.33	26.61	0.40	0.54
0223	BF	21.33	26.61	0.40	0.54
0224	BF	21.82	27.42	0.62	0.83
0232	BF	21.35	26.65	0.40	0.55
0251	BF	21.99	27.71	0.70	0.94
0261	BF	21.49	26.87	0.47	0.63
0281	BF	21.33	26.61	0.40	0.54
0381	BF	21.33	26.61	0.40	0.54
0391	BF	21.27	26.52	0.37	0.50
0522	BF	21.14	26.29	0.31	0.42
0561	BF	21.29	26.55	0.38	0.51
1223	BF	21.35	26.65	0.40	0.55
1231	BF	21.45	26.81	0.45	0.61
1232	BF	21.43	26.78	0.44	0.59

Footnotes at end of table.

--Continued.

Table 10 (continued)

HPA[a]	Crop activity code b/	Estimated cost		Estimated yield[c]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
1241	BF	21.78	27.36	0.60	0.81
1251	BF	21.82	27.42	0.62	0.83
1261	BF	21.49	26.87	0.47	0.63
1281	BF	21.31	26.58	0.39	0.52
1291	BF	21.23	26.45	0.35	0.48
1341	BF	21.12	26.26	0.30	0.40
1351	BF	21.14	26.29	0.31	0.42
1361	BF	20.98	26.04	0.24	0.32
1381	BF	21.04	26.13	0.26	0.36
1451	BF	21.78	27.36	0.60	0.81
1461	BF	21.33	26.61	0.40	0.54
1551	BF	21.12	26.26	0.30	0.40
1561	BF	20.91	25.91	0.20	0.27
2122	BF	20.89	25.87	0.19	0.26
2123	BF	20.89	25.87	0.19	0.26
2124	BF	21.20	26.39	0.33	0.45
2131	BF	20.92	25.94	0.21	0.29
2134	BF	20.81	25.75	0.16	0.21
2141	BF	21.16	26.33	0.32	0.43
2142	BF	21.04	26.13	0.26	0.36
2151	BF	21.20	26.39	0.33	0.45
2181	BF	20.96	26.00	0.23	0.31
2223	BF	21.02	26.10	0.26	0.35
2232	BF	21.00	26.07	0.25	0.33
2323	BF	20.87	25.84	0.18	0.25
2331	BF	20.91	25.91	0.20	0.27
2341	BF	21.14	26.29	0.31	0.42
2342	BF	20.96	26.00	0.23	0.31
2351	BF	21.18	26.36	0.33	0.44
2361	BF	20.91	25.91	0.20	0.27
2381	BF	20.87	25.84	0.18	0.25
2391	BF	20.85	25.81	0.18	0.24
2441	BF	21.08	26.20	0.28	0.38
2442	BF	20.94	25.97	0.22	0.30
2451	BF	21.10	26.23	0.29	0.39
2461	BF	20.85	25.81	0.18	0.24
2463	BF	20.85	25.81	0.18	0.24
2471	BF	21.10	26.23	0.29	0.39
0112	BN	47.00	59.00	0.84	1.14
0121	BN	47.00	59.00	0.83	1.12
0221	BN	47.00	58.00	0.68	0.92
0521	BN	46.00	58.00	0.52	0.70
1221	BN	47.00	58.00	0.70	0.94
2121	BN	46.00	57.00	0.33	0.44
2312	BN	46.00	57.00	0.40	0.55
2321	BN	46.00	57.00	0.39	0.52

Footnotes at end of table.

--Continued.

Table 10 (continued)

HPA a/	Crop activity code b/	Estimated cost		Estimated yield c/	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
0141	BI	61.00	76.00	1.60	2.17
0142	BI	60.00	76.00	1.58	2.14
0151	BI	61.00	76.00	1.58	2.14
0161	BI	61.00	77.00	1.58	2.14
0162	BI	64.00	80.00	1.50	2.03
0163	BI	63.00	79.00	1.47	1.99
0171	BI	68.00	86.00	1.58	2.14
0181	BI	62.00	78.00	1.58	2.14
0191	BI	63.00	79.00	1.58	2.14
0251	BI	64.00	80.00	1.58	2.14
0261	BI	62.00	78.00	1.58	2.14
0262	BI	76.00	94.00	1.49	2.01
0263	BI	69.00	87.00	1.50	2.02
0281	BI	68.00	85.00	1.58	2.14
0362	BI	84.00	104.00	1.58	2.13
0363	BI	91.00	114.00	1.60	2.17
0371	BI	74.00	93.00	1.58	2.14
0381	BI	75.00	93.00	1.58	2.14
0391	BI	62.00	77.00	1.58	2.14
1151	BI	57.00	71.00	1.58	2.14
1191	BI	63.00	79.00	1.65	2.24
1241	BI	59.00	74.00	1.58	2.14
1251	BI	60.00	75.00	1.58	2.14
1261	BI	61.00	77.00	1.58	2.14
1262	BI	72.00	90.00	1.65	2.23
1263	BI	72.00	90.00	1.58	2.14
1281	BI	64.00	80.00	1.58	2.14
1291	BI	60.00	75.00	1.43	1.94
1341	BI	81.00	101.00	1.58	2.14
1351	BI	75.00	94.00	1.58	2.14
1361	BI	74.00	93.00	1.58	2.14
1362	BI	94.00	117.00	1.65	2.23
0111	GS	73.00	92.00	1.36	1.93
0112	GS	74.00	93.00	1.29	1.84
0121	GS	79.00	100.00	1.84	2.62
0171	GS	96.00	121.00	1.94	2.76
0181	GS	74.00	93.00	1.75	2.48
0191	GS	73.00	92.00	1.36	1.93
0221	GS	80.00	101.00	1.84	2.62
0281	GS	83.00	105.00	1.75	2.48
0371	GS	105.00	132.00	1.78	2.53
0381	GS	94.00	117.00	1.60	2.28
0391	GS	70.00	88.00	1.24	1.77
0521	GS	76.00	95.00	1.38	1.96
1191	GS	73.00	92.00	1.36	1.93
1221	GS	74.00	93.00	1.69	2.40

Footnotes at end of table.

--Continued.

Table 10 (continued)

HPA a/	Crop activity code b/	Estimated cost		Estimated yield c/	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
1281	GS	76.00	96.00	1.60	2.28
1291	GS	67.00	84.00	1.24	1.77
2111	GS	93.00	116.00	0.87	1.24
2121	GS	99.00	124.00	1.69	2.40
2181	GS	99.00	124.00	1.53	2.18
2311	GS	93.00	116.00	0.78	1.10
2312	GS	94.00	117.00	0.78	1.10
2321	GS	96.00	121.00	1.53	2.18
2381	GS	96.00	120.00	1.45	2.07
0111	AL	106.00	137.00	3.73	4.41
0112	AL	113.00	147.00	4.44	5.26
0121	AL	116.00	149.00	3.86	4.58
0122	AL	134.00	174.00	5.38	6.38
0123	AL	123.00	161.00	5.31	6.29
0132	AL	170.00	217.00	4.96	5.88
0134	AL	204.00	260.00	5.38	6.38
0141	AL	124.00	163.00	5.76	6.82
0142	AL	125.00	164.00	5.53	6.55
0151	AL	134.00	175.00	6.01	7.12
0161	AL	126.00	165.00	5.73	6.79
0162	AL	141.00	184.00	6.06	7.18
0163	AL	139.00	181.00	5.84	6.92
0171	AL	144.00	184.00	4.55	5.40
0181	AL	116.00	151.00	4.97	5.89
0191	AL	98.00	126.00	3.73	4.41
0221	AL	123.00	160.00	4.69	5.56
0222	AL	140.00	182.00	5.38	6.38
0223	AL	130.00	170.00	5.53	6.55
0224	AL	138.00	181.00	5.98	7.08
0232	AL	162.00	208.00	5.08	6.02
0251	AL	146.00	190.00	5.98	7.08
0261	AL	135.00	177.00	6.33	7.50
0262	AL	183.00	236.00	6.23	7.38
0263	AL	160.00	207.00	6.02	7.13
0281	AL	131.00	170.00	4.97	5.89
0362	AL	209.00	268.00	6.22	7.37
0363	AL	233.00	297.00	6.04	7.16
0371	AL	167.00	215.00	5.14	6.09
0372	AL	178.00	229.00	6.02	7.13
0381	AL	152.00	196.00	5.43	6.43
0391	AL	93.00	121.00	3.73	4.41
0521	AL	122.00	156.00	3.39	4.02
0522	AL	141.00	181.00	4.43	5.24
0561	AL	132.00	171.00	4.89	5.79
0562	AL	145.00	187.00	4.97	5.89
0563	AL	144.00	186.00	4.97	5.89

Footnotes at end of table. --Continued.

Table 10 (continued)

HPA a/	Crop activity code b/	Estimated cost 1965	Estimated cost 1980	Estimated yield c/ Average 1961-65	Estimated yield c/ 1980
		dollars/acre		tons/acre	
0572	AL	194.00	248.00	5.28	6.26
1151	AL	128.00	168.00	5.68	6.73
1191	AL	96.00	124.00	3.59	4.25
1221	AL	104.00	134.00	3.40	4.03
1223	AL	113.00	147.00	4.43	5.24
1231	AL	144.00	184.00	3.62	4.29
1232	AL	145.00	186.00	4.47	5.30
1241	AL	112.00	145.00	4.64	5.49
1251	AL	119.00	155.00	4.94	5.85
1261	AL	120.00	156.00	4.89	5.79
1262	AL	164.00	211.00	5.51	6.53
1263	AL	158.00	203.00	4.97	5.89
1281	AL	113.00	146.00	4.08	4.84
1291	AL	82.00	106.00	3.07	3.64
1341	AL	132.00	170.00	4.64	5.49
1351	AL	132.00	171.00	4.94	5.85
1361	AL	133.00	172.00	4.89	5.79
1362	AL	197.00	251.00	5.51	6.53
1451	AL	124.00	162.00	5.20	6.16
1461	AL	126.00	164.00	5.31	6.29
1462	AL	160.00	206.00	5.56	6.58
1551	AL	123.00	161.00	5.20	6.16
1561	AL	134.00	175.00	5.31	6.29
1562	AL	181.00	232.00	5.56	6.58
1572	AL	195.00	249.00	5.23	6.20
2111	AL	130.00	166.00	3.47	4.11
2121	AL	140.00	179.00	3.85	4.57
2122	AL	163.00	210.00	5.01	5.94
2123	AL	150.00	193.00	5.01	5.94
2124	AL	162.00	208.00	5.29	6.27
2131	AL	185.00	235.00	4.11	4.87
2134	AL	269.00	340.00	5.01	5.94
2141	AL	155.00	199.00	5.20	6.16
2142	AL	159.00	205.00	5.09	6.03
2151	AL	159.00	204.00	5.29	6.27
2181	AL	145.00	185.00	4.32	5.12
2223	AL	156.00	201.00	4.91	5.82
2232	AL	204.00	258.00	4.61	5.46
2263	AL	225.00	286.00	5.43	6.43
2311	AL	126.00	160.00	2.91	3.44
2312	AL	134.00	171.00	3.73	4.41
2321	AL	132.00	168.00	3.22	3.81
2323	AL	143.00	183.00	4.20	4.97
2331	AL	163.00	207.00	3.42	4.05
2341	AL	146.00	188.00	4.52	5.35
2342	AL	149.00	192.00	4.52	5.35

Footnotes at end of table. --Continued.

Table 10 (continued)

HPA[a]	Crop activity code b/	Estimated cost		Estimated yield[c]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
2351	AL	153.00	196.00	4.65	5.50
2361	AL	144.00	185.00	4.65	5.50
2381	AL	135.00	173.00	3.86	4.58
2441	AL	147.00	188.00	4.18	4.95
2442	AL	153.00	195.00	4.18	4.95
2451	AL	156.00	199.00	4.27	5.06
2461	AL	147.00	188.00	4.30	5.09
2462	AL	205.00	259.00	4.36	5.17
2463	AL	173.00	220.00	4.51	5.34
0111	BE	97.00	122.00	0.53	0.61
0112	BE	98.00	122.00	0.51	0.58
0121	BE	112.00	142.00	0.91	1.03
0122	BE	117.00	148.00	0.99	1.12
0123	BE	113.00	143.00	0.91	1.03
0132	BE	130.00	163.00	0.82	0.93
0134	BE	142.00	178.00	0.76	0.86
0141	BE	105.00	132.00	0.75	0.85
0142	BE	103.00	130.00	0.69	0.79
0151	BE	108.00	137.00	0.77	0.88
0161	BE	100.00	126.00	0.61	0.69
0162	BE	109.00	137.00	0.77	0.88
0163	BE	107.00	135.00	0.72	0.82
0181	BE	98.00	123.00	0.53	0.61
0221	BE	110.00	139.00	0.80	0.91
0222	BE	121.00	153.00	0.99	1.12
0223	BE	116.00	147.00	0.91	1.03
0224	BE	110.00	138.00	0.72	0.82
0232	BE	126.00	158.00	0.79	0.90
0251	BE	116.00	146.00	0.82	0.93
0261	BE	104.00	132.00	0.69	0.79
0262	BE	128.00	160.00	0.72	0.82
0263	BE	117.00	147.00	0.72	0.82
0281	BE	107.00	133.00	0.53	0.61
0362	BE	142.00	177.00	0.76	0.86
0363	BE	154.00	193.00	0.76	0.86
0381	BE	116.00	145.00	0.53	0.61
0521	BE	111.00	140.00	0.82	0.93
0522	BE	118.00	149.00	0.89	1.01
0561	BE	101.00	127.00	0.54	0.62
0562	BE	109.00	137.00	0.69	0.78
0563	BE	108.00	136.00	0.69	0.78
1221	BE	101.00	127.00	0.69	0.78
1223	BE	105.00	132.00	0.69	0.78
1231	BE	116.00	145.00	0.63	0.72
1232	BE	116.00	146.00	0.66	0.75
1241	BE	97.00	122.00	0.55	0.63

Footnotes at end of table. --Continued.

Table 10 (continued)

HPA[a/]	Crop activity code [b/]	Estimated cost		Estimated yield[c/]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
1251	BE	100.00	125.00	0.56	0.64
1261	BE	96.00	120.00	0.45	0.52
1262	BE	117.00	146.00	0.57	0.65
1263	BE	116.00	146.00	0.57	0.65
1281	BE	97.00	122.00	0.40	0.45
1341	BE	118.00	148.00	0.55	0.63
1351	BE	115.00	143.00	0.56	0.64
1361	BE	111.00	138.00	0.45	0.52
1362	BE	143.00	179.00	0.57	0.65
1451	BE	102.00	128.00	0.58	0.66
1461	BE	97.00	121.00	0.43	0.48
1462	BE	114.00	143.00	0.54	0.62
1551	BE	106.00	132.00	0.58	0.66
1561	BE	106.00	132.00	0.43	0.48
1562	BE	128.00	160.00	0.54	0.62
2111	BE	112.00	140.00	0.37	0.42
2121	BE	123.00	154.00	0.64	0.73
2122	BE	132.00	165.00	0.69	0.79
2123	BE	127.00	159.00	0.64	0.73
2124	BE	124.00	155.00	0.54	0.62
2131	BE	138.00	172.00	0.59	0.67
2134	BE	176.00	218.00	0.53	0.61
2141	BE	122.00	152.00	0.53	0.61
2142	BE	122.00	153.00	0.53	0.61
2151	BE	125.00	156.00	0.61	0.70
2181	BE	117.00	146.00	0.37	0.42
2223	BE	130.00	163.00	0.62	0.71
2232	BE	148.00	185.00	0.59	0.67
2263	BE	153.00	190.00	0.53	0.61
2311	BE	110.00	137.00	0.28	0.32
2312	BE	111.00	138.00	0.28	0.32
2321	BE	117.00	146.00	0.48	0.55
2323	BE	122.00	153.00	0.48	0.55
2331	BE	126.00	157.00	0.45	0.51
2341	BE	117.00	146.00	0.41	0.46
2342	BE	117.00	145.00	0.41	0.46
2351	BE	119.00	148.00	0.41	0.46
2361	BE	111.00	138.00	0.32	0.36
2381	BE	112.00	138.00	0.28	0.32
2441	BE	118.00	146.00	0.38	0.43
2442	BE	119.00	148.00	0.38	0.43
2451	BE	122.00	152.00	0.41	0.46
2461	BE	114.00	141.00	0.30	0.34
2462	BE	142.00	177.00	0.38	0.43
2463	BE	128.00	159.00	0.45	0.52
1231	RI	240.00	299.00	1.75	2.38

Footnotes at end of table.

--Continued.

Table 10 (continued)

HPA[a]	Crop activity code [b]	Estimated cost		Estimated yield[c]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
1232	RI	240.00	299.00	1.75	2.38
1241	RI	194.00	245.00	2.56	3.48
1251	RI	196.00	246.00	1.90	2.57
1261	RI	191.00	240.00	2.04	2.77
1262	RI	241.00	302.00	2.06	2.79
1263	RI	239.00	300.00	2.09	2.83
1341	RI	195.00	247.00	2.56	3.48
1351	RI	192.00	241.00	1.90	2.57
1361	RI	190.00	239.00	2.04	2.77
1362	RI	275.00	344.00	2.06	2.79
1451	RI	205.00	256.00	1.60	2.17
1461	RI	198.00	248.00	1.93	2.61
1462	RI	249.00	311.00	1.93	2.62
1551	RI	182.00	228.00	1.60	2.17
1561	RI	200.00	251.00	1.93	2.61
1562	RI	277.00	346.00	1.93	2.62
1572	RI	236.00	297.00	2.45	3.32
2124	RI	282.00	351.00	1.75	2.38
2131	RI	339.00	422.00	1.75	2.38
2134	RI	509.00	633.00	2.67	3.62
2141	RI	282.00	354.00	2.67	3.62
2142	RI	286.00	359.00	2.52	3.42
2151	RI	273.00	341.00	1.75	2.38
2232	RI	348.00	434.00	1.91	2.59
2331	RI	254.00	316.00	1.50	2.04
2341	RI	242.00	303.00	2.29	3.11
2342	RI	241.00	302.00	2.29	3.11
2351	RI	239.00	298.00	1.50	2.04
2361	RI	218.00	274.00	1.81	2.45
2441	RI	247.00	310.00	2.21	3.00
2442	RI	251.00	315.00	2.29	3.11
2451	RI	250.00	312.00	1.65	2.23
2461	RI	228.00	285.00	1.81	2.45
2462	RI	297.00	370.00	1.81	2.45
2463	RI	250.00	312.00	1.81	2.45
0134	SI	93.00	116.00	1.04	1.48
0141	SI	51.00	64.00	1.08	1.53
0142	SI	50.00	63.00	1.08	1.53
0151	SI	53.00	67.00	1.04	1.48
0161	SI	47.00	59.00	1.04	1.48
0162	SI	52.00	66.00	1.22	1.72
0163	SI	52.00	66.00	1.22	1.72
0171	SI	55.00	69.00	0.70	0.98
0181	SI	49.00	61.00	0.87	1.23
0224	SI	56.00	70.00	1.04	1.48
0251	SI	60.00	76.00	1.04	1.48

Footnotes at end of table. --Continued.

Table 10 (continued)

HPA[a/]	Crop activity code b/	Estimated cost		Estimated yield[c/]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
0261	SI	50.00	62.00	1.04	1.48
0262	SI	77.00	96.00	1.22	1.72
0263	SI	64.00	80.00	1.22	1.72
0281	SI	60.00	75.00	0.87	1.23
0362	SI	92.00	115.00	1.20	1.70
0363	SI	108.00	134.00	1.22	1.72
0371	SI	65.00	81.00	0.70	0.98
0372	SI	63.00	79.00	1.22	1.72
0381	SI	74.00	92.00	0.87	1.23
0561	SI	48.00	59.00	0.45	0.64
0562	SI	52.00	65.00	0.52	0.74
0563	SI	52.00	65.00	0.52	0.74
0572	SI	66.00	82.00	0.52	0.74
1151	SI	40.00	50.00	1.13	1.60
1241	SI	47.00	58.00	0.77	1.08
1251	SI	49.00	61.00	0.82	1.16
1261	SI	47.00	58.00	0.70	0.98
1262	SI	68.00	84.00	0.66	0.93
1263	SI	67.00	84.00	0.66	0.93
1281	SI	51.00	63.00	0.30	0.42
1341	SI	68.00	84.00	0.77	1.08
1351	SI	63.00	79.00	0.82	1.16
1361	SI	61.00	76.00	0.70	0.98
1362	SI	96.00	118.00	0.66	0.93
1451	SI	50.00	62.00	0.59	0.84
1461	SI	47.00	59.00	0.59	0.84
1462	SI	65.00	81.00	0.74	1.05
1551	SI	52.00	65.00	0.59	0.84
1561	SI	56.00	70.00	0.59	0.84
1562	SI	80.00	100.00	0.74	1.05
1572	SI	82.00	102.00	0.90	1.27
2134	SI	144.00	178.00	0.70	0.98
2141	SI	80.00	100.00	0.77	1.08
2142	SI	81.00	101.00	0.77	1.08
2151	SI	79.00	98.00	0.70	0.98
2181	SI	79.00	98.00	0.57	0.81
2263	SI	114.00	142.00	0.66	0.93
2341	SI	78.00	96.00	0.59	0.84
2342	SI	77.00	96.00	0.59	0.84
2351	SI	78.00	97.00	0.56	0.79
2361	SI	70.00	87.00	0.56	0.79
2381	SI	74.00	92.00	0.47	0.66
0121	SB	267.00	340.00	22.09	25.31
0122	SB	277.00	353.00	24.43	27.99
0123	SB	273.00	347.00	23.60	27.03
0132	SB	302.00	384.00	24.35	27.90

Footnotes at end of table.

--Continued.

Table 10 (continued)

HPA[a]	Crop activity code [b]	Estimated cost		Estimated yield[c]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
0134	SB	320.00	406.00	24.46	28.03
0141	SB	240.00	304.00	20.27	23.22
0142	SB	237.00	301.00	19.77	22.64
0151	SB	264.00	335.00	21.28	24.38
0161	SB	245.00	312.00	21.14	24.21
0162	SB	256.00	325.00	21.14	24.21
0163	SB	256.00	325.00	21.06	24.13
0171	SB	295.00	371.00	17.61	20.18
0181	SB	235.00	299.00	19.57	22.42
0191	SB	229.00	289.00	15.66	17.94
0221	SB	271.00	345.00	23.21	26.59
0222	SB	285.00	364.00	25.73	29.48
0223	SB	279.00	355.00	24.44	28.00
0224	SB	269.00	341.00	21.66	24.82
0232	SB	300.00	381.00	24.93	28.56
0251	SB	275.00	349.00	21.66	24.82
0261	SB	253.00	322.00	22.59	25.88
0262	SB	287.00	363.00	20.48	23.46
0263	SB	272.00	346.00	21.51	24.64
0281	SB	251.00	318.00	19.57	22.42
0362	SB	310.00	392.00	21.29	24.39
0363	SB	333.00	420.00	22.11	25.33
0371	SB	308.00	387.00	17.61	20.18
0372	SB	316.00	399.00	22.22	25.45
0381	SB	270.00	342.00	19.57	22.42
0391	SB	224.00	284.00	15.66	17.94
0521	SB	260.00	330.00	19.24	22.04
0522	SB	274.00	348.00	21.20	24.28
0561	SB	242.00	307.00	17.61	20.18
0562	SB	253.00	320.00	17.61	20.18
0563	SB	255.00	322.00	18.43	21.11
0572	SB	319.00	402.00	18.75	21.48
1151	SB	256.00	325.00	20.26	23.21
1191	SB	226.00	284.00	14.58	16.71
1221	SB	259.00	330.00	22.11	25.33
1223	SB	268.00	342.00	23.43	26.85
1231	SB	284.00	360.00	22.51	25.78
1232	SB	288.00	367.00	24.24	27.77
1241	SB	226.00	287.00	18.41	21.09
1251	SB	252.00	320.00	20.12	23.05
1261	SB	241.00	307.00	20.71	23.73
1262	SB	273.00	346.00	20.40	23.38
1263	SB	274.00	347.00	21.19	24.27
1281	SB	235.00	298.00	18.75	21.48
1291	SB	214.00	270.00	14.98	17.16
1341	SB	247.00	313.00	18.41	21.09

Footnotes at end of table.

--Continued.

Table 10 (continued)

HPA[a]	Crop activity code [b]	Estimated cost		Estimated yield[c]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
1351	SB	266.00	337.00	20.12	23.05
1361	SB	255.00	324.00	20.71	23.73
1362	SB	303.00	383.00	20.40	23.38
1451	SB	257.00	325.00	19.77	22.64
1461	SB	244.00	311.00	20.16	23.09
1462	SB	272.00	344.00	20.22	23.16
1551	SB	257.00	325.00	19.77	22.64
1561	SB	253.00	322.00	20.16	23.09
1562	SB	290.00	367.00	20.22	23.16
1572	SB	332.00	418.00	20.47	23.45
2121	SB	283.00	358.00	20.74	23.77
2122	SB	297.00	377.00	22.80	26.13
2123	SB	291.00	369.00	21.97	25.17
2124	SB	290.00	366.00	19.91	22.81
2131	SB	308.00	390.00	21.08	24.15
2134	SB	367.00	462.00	21.97	25.17
2141	SB	260.00	329.00	17.57	20.13
2142	SB	263.00	332.00	17.97	20.59
2151	SB	284.00	360.00	19.91	22.81
2181	SB	260.00	328.00	17.57	20.13
2223	SB	288.00	364.00	19.51	22.35
2232	SB	316.00	398.00	19.82	22.70
2263	SB	316.00	397.00	17.91	20.52
2321	SB	271.00	342.00	17.32	19.85
2323	SB	281.00	354.00	18.34	21.02
2331	SB	289.00	364.00	17.61	20.18
2341	SB	249.00	314.00	14.68	16.82
2342	SB	251.00	316.00	15.41	17.65
2351	SB	274.00	346.00	16.67	19.09
2361	SB	251.00	317.00	15.85	18.16
2381	SB	245.00	309.00	14.68	16.82
2441	SB	249.00	314.00	13.59	15.56
2442	SB	253.00	318.00	14.26	16.33
2451	SB	275.00	346.00	15.15	17.36
2461	SB	253.00	318.00	14.68	16.82
2462	SB	299.00	375.00	14.68	16.82
2463	SB	274.00	345.00	15.35	17.58

Footnotes at end of table.

--Continued.

Table 10 (continued)

HPA a/	Crop activity code b/	Estimated cost		Estimated yield c/	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
0161	CT	208.00	270.00	1.73	1.99
0162	CT	221.00	287.00	1.94	2.22
0163	CT	221.00	287.00	1.94	2.22
0171	CT	213.00	271.00	1.17	1.35
0261	CT	211.00	274.00	1.73	1.99
0262	CT	245.00	317.00	1.94	2.22
0263	CT	232.00	302.00	1.94	2.22
0362	CT	269.00	348.00	2.09	2.40
0363	CT	284.00	367.00	2.09	2.40
0371	CT	227.00	290.00	1.27	1.46
0372	CT	282.00	368.00	2.60	2.98
0561	CT	211.00	273.00	1.58	1.81
0562	CT	221.00	285.00	1.73	1.99
0563	CT	220.00	285.00	1.73	1.99
0572	CT	294.00	382.00	2.60	2.98
1261	CT	209.00	273.00	1.94	2.22
1262	CT	236.00	307.00	2.09	2.40
1263	CT	235.00	306.00	2.09	2.40
1361	CT	223.00	290.00	1.94	2.22
1362	CT	263.00	341.00	2.09	2.40
1461	CT	203.00	263.00	1.58	1.81
1462	CT	226.00	291.00	1.73	1.99
1561	CT	212.00	274.00	1.58	1.81
1562	CT	241.00	310.00	1.73	1.99
1572	CT	256.00	329.00	1.73	1.99
2263	CT	264.00	340.00	1.84	2.11
2361	CT	214.00	274.00	1.43	1.64
2461	CT	213.00	273.00	1.33	1.52
2462	CT	249.00	318.00	1.48	1.70
2463	CT	229.00	294.00	1.48	1.70

a/ The first two digits of the HPA code identify soil; the last two digits identify climate.

b/ Crop activity legend:

AS - asparagus
BR - broccoli
LE - lettuce, fall or spring
LS - lettuce, summer
CF - cantaloupes, fall or spring
CA - cantaloupes, summer
PO - potatoes, U.S.D.A. No. 1's
TO - tomatoes for processing
BF - barley (fallow); yield estimates are 1/2 expected yield in year grown; cost estimates are 1/2 combined cost of one year fallow and one year barley

--Continued.

Table 10 (continued)

b/ (continued)

BN - barley (nonirrigated)
BI - barley (irrigated)
GS - grain sorghum
AL - alfalfa
BE - dry beans
RI - rice
SI - safflower, irrigated
SB - sugar beets
CT - cotton solid plant; yield estimates are for gross lint weight.

c/ The refinement of yield estimation to two decimal places is not intended to reflect the degree of accuracy assumed. Its only purpose is to preserve the relative structure of yields among HPAs as originally estimated.

TABLE 11

Estimated Base Period and 1980 Annual Crop Yield and Nonland Costs Per Acre, Broccoli-Lettuce Double Crop Activities

HPA[a]	Broccoli lettuce activity code	Estimated cost		Estimated yield[b]			
				Broccoli		Lettuce	
		1965	1980	Average 1961-65	1980	Average 1961-65	1980
		dollars/acre		tons/acre			
0121	BL	1043.00	1471.00	3.45	4.21	8.94	11.56
0122	BL	1118.00	1585.00	3.63	4.43	10.03	12.97
0123	BL	1146.00	1631.00	3.37	4.12	10.78	13.94
0132	BL	1084.00	1524.00	2.61	3.18	9.39	12.13
0221	BL	1065.00	1507.00	2.91	3.55	9.65	12.48
0222	BL	1131.00	1605.00	3.05	3.73	10.46	13.53
0223	BL	1127.00	1600.00	3.16	3.86	10.40	13.45
0232	BL	1075.00	1512.00	2.27	2.77	9.50	12.29
0521	BL	1022.00	1435.00	2.52	3.08	8.76	11.33
0522	BL	1110.00	1567.00	2.74	3.35	9.96	12.88
1221	BL	1006.00	1417.00	2.44	2.98	8.87	11.47
1223	BL	1105.00	1570.00	2.66	3.24	10.42	13.48
1231	BL	1066.00	1500.00	2.30	2.81	9.47	12.25
1232	BL	1052.00	1480.00	2.18	2.66	9.29	12.01
2121	BL	997.00	1398.00	2.52	3.08	8.35	10.79
2122	BL	1084.00	1526.00	2.74	3.35	9.47	12.25
2123	BL	1094.00	1545.00	2.74	3.35	9.80	12.67
2131	BL	1057.00	1480.00	2.37	2.90	8.91	11.52
2223	BL	1106.00	1558.00	2.74	3.35	9.70	12.54
2232	BL	1076.00	1505.00	2.19	2.68	9.05	11.70
2321	BL	938.00	1306.00	2.41	2.94	7.32	9.46
2323	BL	1027.00	1439.00	2.53	3.09	8.60	11.12
2331	BL	984.00	1369.00	2.19	2.68	7.82	10.11

[a] The first two digits of the HPA code identify soil; the last two digits identify climate.

[b] The refinement of yield estimation of two decimal places is not intended to reflect the degree of accuracy assumed. Its only purpose is to preserve the relative structure of yields among HPAs as originally estimated.

TABLE 12

Estimated Base Period and 1980 Annual Crop Yield and Nonland Costs Per Acre, Lettuce Double Crop Activities in One Seasonal Group a/

HPA b/	Crop activity code c/	Estimated cost 1965	Estimated cost 1980	Estimated yield d/ Average 1961-65	Estimated yield d/ 1980
		dollars/acre		tons/acre	
0121	LL	1318.00	1947.00	17.88	23.12
0122	LL	1448.00	2147.00	20.06	25.93
0123	LL	1521.00	2264.00	21.56	27.88
0132	LL	1402.00	2067.00	18.77	24.27
0134	LL	1321.00	1929.00	16.67	21.56
0161	LL	1286.00	1896.00	17.23	22.27
0162	LL	1265.00	1859.00	16.63	21.50
0163	LL	1265.00	1859.00	16.63	21.50
0221	LL	1390.00	2062.00	19.30	24.96
0222	LL	1500.00	2227.00	20.93	27.06
0223	LL	1490.00	2212.00	20.81	26.91
0232	LL	1408.00	2079.00	19.01	24.58
0261	LL	1290.00	1901.00	17.23	22.27
0262	LL	1297.00	1899.00	16.63	21.50
0263	LL	1280.00	1878.00	16.63	21.50
0362	LL	1280.00	1864.00	15.88	20.53
0363	LL	1300.00	1889.00	15.88	20.53
0521	LL	1320.00	1942.00	17.52	22.66
0522	LL	1469.00	2170.00	19.92	25.75
1221	LL	1312.00	1937.00	17.74	22.94
1223	LL	1488.00	2211.00	20.85	26.96
1231	LL	1404.00	2073.00	18.95	24.50
1232	LL	1385.00	2042.00	18.57	24.01
1261	LL	1264.00	1858.00	16.63	21.50
1262	LL	1269.00	1855.00	16.14	20.86
1263	LL	1268.00	1854.00	16.14	20.86
1361	LL	1278.00	1876.00	16.63	21.50
1362	LL	1300.00	1893.00	16.14	20.86
1461	LL	1200.00	1755.00	15.25	19.71
1462	LL	1200.00	1745.00	14.75	19.07
1561	LL	1209.00	1765.00	15.25	19.71
1562	LL	1218.00	1767.00	14.75	19.07
2121	LL	1271.00	1868.00	16.69	21.58
2123	LL	1422.00	2131.00	19.60	25.34
2131	LL	1361.00	2000.00	17.82	23.04
2134	LL	1291.00	1864.00	15.15	19.58
2223	LL	1455.00	2143.00	19.40	25.09
2232	LL	1400.00	2052.00	18.10	23.40
2263	LL	1273.00	1846.00	15.36	19.87
2321	LL	1164.00	1698.00	14.63	18.92
2323	LL	1320.00	1937.00	17.21	22.25
2331	LL	1238.00	1808.00	15.64	20.22

Footnotes at end of table.

--Continued.

Table 12 (continued)

HPA[b]	Crop activity code [c]	Estimated cost		Estimated yield[d]	
		1965	1980	Average 1961-65	1980
		dollars/acre		tons/acre	
2361	LL	1125.00	1635.00	13.76	17.79
2461	LL	1080.00	1561.00	12.77	16.51
0372	LW	1446.00	2131.00	19.30	24.96
0572	LW	1463.00	2146.00	19.01	24.58
1572	LW	1399.00	2050.00	18.02	23.30

a/ Cost and yield estimates are for two crops of winter or one crop each of fall and spring lettuce.

b/ The first two digits of the HPA code identify soil, the last two digits identify climate.

c/ Crop activity legend:
LL - lettuce, fall and spring
LW - lettuce, winter.

d/ The refinement of yeild estimation to two decimal places is not intended to reflect the degree of accuracy assumed. Its only purpose is to preserve the relative structure of yields among HPAs as originally estimated.

TABLE 13

Estimated Base Period and 1980 Annual Crop Yield and Nonland Costs Per Acre, Fall or Spring and Summer Lettuce Double Crop Activities

HPA[a]	Lettuce activity code	Estimated cost		Estimated lettuce yield[b]			
				fall or spring		summer	
		1965	1980	Average 1961-65	1980	Average 1961-65	1980
		dollars/acre		tons/acre			
0121	LO	1318.00	1947.00	8.94	11.56	8.94	11.56
0122	LO	1448.00	2147.00	10.03	12.97	10.03	12.97
0123	LO	1521.00	2264.00	10.78	13.94	10.78	13.94
0132	LO	1402.00	2067.00	9.39	12.13	9.39	12.13
0221	LO	1390.00	2062.00	9.65	12.48	9.65	12.48
0222	LO	1500.00	2227.00	10.46	13.53	10.46	13.53
0223	LO	1490.00	2212.00	10.40	13.45	10.40	13.45
0232	LO	1408.00	2079.00	9.50	12.29	9.50	12.29
0521	LO	1320.00	1942.00	8.76	11.33	8.76	11.33
0522	LO	1469.00	2170.00	9.96	12.88	9.96	12.88
1221	LO	1312.00	1937.00	8.87	11.47	8.87	11.47
1223	LO	1488.00	2211.00	10.42	13.48	10.42	13.48
1231	LO	1404.00	2073.00	9.47	12.25	9.47	12.25
1232	LO	1385.00	2042.00	9.29	12.01	9.29	12.01
2121	LO	1271.00	1868.00	8.35	10.79	8.35	10.79
2122	LO	1415.00	2086.00	9.47	12.25	9.47	12.25
2123	LO	1442.00	2131.00	9.80	12.67	9.80	12.67
2131	LO	1361.00	2000.00	8.91	11.52	8.91	11.52
2223	LO	1455.00	2143.00	9.70	12.54	9.70	12.54
2232	LO	1400.00	2052.00	9.05	11.70	9.05	11.70
2321	LO	1164.00	1698.00	7.32	9.46	7.32	9.46
2323	LO	1320.00	1937.00	8.60	11.12	8.60	11.12
2331	LO	1238.00	1808.00	7.82	10.11	7.82	10.11

[a] The first two digits of the HPA code identify soil; the last two digits identify climate.

[b] The refinement of yield estimation of two decimal places is not intended to reflect the degree of accuracy assumed. Its only purpose is to preserve the relative structure of yields among HPAs as originally estimated.

TABLE 14

Estimated Base Period and 1980 Annual Crop Yield and Nonland Costs Per Acre, Barley-Grain Sorghum Double Crop Activities [a]

HPA[b]	Barley-Sorghum activity code	Estimated cost		Estimated yield[c]			
				Barley, irrigated		Grain sorghum	
		1965	1980	Average 1961-65	1980	Average 1961-65	1980
		dollars/acre		tons/acre			
0122	BG	100.00	127.00	1.27	1.71	1.40	1.99
0123	BG	98.00	124.00	1.27	1.71	1.40	1.99
0132	BG	124.00	156.00	1.27	1.71	1.55	2.21
0134	BG	176.00	220.00	1.58	2.14	1.94	2.76
0141	BG	95.00	120.00	1.28	1.74	1.88	2.68
0142	BG	93.00	118.00	1.27	1.71	1.65	2.35
0151	BG	104.00	132.00	1.35	1.82	1.97	2.80
0161	BG	100.00	127.00	1.35	1.82	1.80	2.57
0162	BG	112.00	142.00	1.36	1.83	1.94	2.76
0163	BG	112.00	141.00	1.32	1.78	1.72	2.44
0222	BG	106.00	134.00	1.27	1.71	1.40	1.99
0223	BG	103.00	130.00	1.27	1.71	1.40	1.99
0224	BG	107.00	136.00	1.35	1.82	2.00	2.84
0232	BG	119.00	150.00	1.27	1.71	1.55	2.21
0251	BG	112.00	142.00	1.35	1.82	2.00	2.84
0261	BG	104.00	132.00	1.35	1.82	2.01	2.86
0262	BG	142.00	178.00	1.34	1.81	1.97	2.80
0263	BG	126.00	158.00	1.35	1.82	1.79	2.55
0362	BG	160.00	201.00	1.42	1.92	1.89	2.69
0363	BG	178.00	223.00	1.44	1.95	1.73	2.46
0372	BG	144.00	181.00	1.65	2.24	1.96	2.79
0522	BG	101.00	127.00	1.07	1.45	1.05	1.49
0561	BG	98.00	123.00	1.14	1.55	1.43	2.03
0562	BG	109.00	138.00	1.21	1.64	1.57	2.24
0563	BG	108.00	136.00	1.21	1.64	1.38	1.96
0572	BG	147.00	184.00	1.18	1.59	1.68	2.39
1151	BG	84.00	107.00	1.35	1.82	2.01	2.86

Footnotes at end of table.

--Continued.

Table 14 (continued)

HPA[b]	Barley-Sorghum activity code	Estimated cost		Estimated yield[c]			
				Barley, irrigated		Grain sorghum	
		1965	1980	Average 1961-65	1980	Average 1961-65	1980
		dollars/acre		tons/acre			
1223	BG	95.00	120.00	1.27	1.71	1.28	1.82
1231	BG	111.00	140.00	1.27	1.71	1.42	2.01
1232	BG	111.00	140.00	1.27	1.71	1.42	2.01
1241	BG	93.00	118.00	1.27	1.71	1.65	2.35
1251	BG	100.00	127.00	1.35	1.82	1.83	2.61
1261	BG	100.00	127.00	1.35	1.82	1.78	2.54
1262	BG	132.00	167.00	1.48	2.00	1.88	2.68
1263	BG	131.00	164.00	1.43	1.93	1.68	2.39
1341	BG	114.00	144.00	1.27	1.71	1.65	2.35
1351	BG	114.00	144.00	1.35	1.82	1.83	2.61
1361	BG	115.00	145.00	1.35	1.82	1.78	2.54
1362	BG	162.00	203.00	1.48	2.00	1.88	2.68
1451	BG	100.00	126.00	1.10	1.49	1.51	2.15
1461	BG	100.00	126.00	1.14	1.55	1.29	1.84
1462	BG	127.00	160.00	1.21	1.64	1.54	2.19
1551	BG	103.00	129.00	1.10	1.49	1.51	2.15
1561	BG	109.00	137.00	1.14	1.55	1.29	1.84
1562	BG	144.00	181.00	1.21	1.64	1.54	2.19
1572	BG	163.00	204.00	1.30	1.76	1.48	2.11
2122	BG	128.00	161.00	1.07	1.45	1.28	1.82
2123	BG	124.00	155.00	1.07	1.45	1.28	1.82
2124	BG	130.00	163.00	1.14	1.55	1.78	2.53
2131	BG	140.00	176.00	1.07	1.45	1.42	2.01
2134	BG	230.00	286.00	1.35	1.82	1.70	2.41
2141	BG	122.00	153.00	1.07	1.45	1.60	2.28
2142	BG	122.00	153.00	1.07	1.45	1.46	2.08
2151	BG	128.00	161.00	1.14	1.55	1.78	2.53

Footnotes at end of table.

--Continued.

Table 14 (continued)

HPA[b]	Barley-Sorghum activity code	Estimated cost		Estimated yield[c]			
				Barley, irrigated		Grain sorghum	
		1965	1980	Average 1961-65	1980	Average 1961-65	1980
		dollars/acre		tons/acre			
2223	BG	129.00	162.00	1.07	1.45	1.33	1.89
2232	BG	154.00	193.00	1.07	1.45	1.42	2.01
2263	BG	179.00	224.00	1.21	1.64	1.64	2.33
2323	BG	123.00	154.00	1.07	1.45	1.16	1.66
2331	BG	129.00	161.00	1.07	1.45	1.30	1.85
2341	BG	119.00	150.00	1.07	1.45	1.55	2.21
2342	BG	118.00	149.00	1.07	1.45	1.39	1.97
2351	BG	127.00	159.00	1.14	1.55	1.64	2.33
2361	BG	122.00	154.00	1.14	1.55	1.65	2.35
2441	BG	120.00	151.00	0.89	1.20	1.30	1.85
2442	BG	122.00	152.00	0.89	1.20	1.26	1.79
2451	BG	130.00	162.00	0.94	1.27	1.45	2.07
2461	BG	125.00	156.00	0.94	1.27	1.36	1.93

[a] See Table 8 for adjustment factors and the text for procedure used to modify cost and yield estimates per harvested acre to estimates per unit of land required.

[b] The first two digits of the HPA code identify soil; the last two digits identify climate.

[c] The refinement of yield estimation to two decimal places is not intended to reflect the degree of accuracy assumed. Its only purpose is to preserve the relative structure of yields among HPAs as originally estimated.

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